

3/11/2017 Total snow amounts across Wilson County ranged from 0.5 inches up to 1.5 inches. CoCoRaHS station Green Hill 0.3 N measured 1.2 inches of snow, while CoCoRaHS station Mount Juliet 4.0 SE measured 0.5 inches of snow. A tSpotter Twitter report indicated 1.5 inches of snow fell in Gladeville, while the NWS Nashville office measured 1 inch of snow. A late winter snow event affected Middle Tennessee from Saturday, March 11 into early Sunday, March 12. Light snow began falling in the early morning hours on March 11 across the northern half of Middle Tennessee, which continued through the morning before ending. Additional rain moved into the southern half of Middle Tennessee during the afternoon, and as temperatures cooled during the evening the rain changed to snow. Snow continued into the very early morning hours on March 12 before ending. Total snow amounts ranged from 1/2 up to nearly 4 across Middle Tennessee.

1/12/2018 NWS observations and CoCoRaHS reports indicated up to 1 inch of snow fell across Wilson County. 0.8 inches of snow was measured at NWS Nashville, 0.8 inches of snow was measured 2 miles west-southwest of Mount Juliet, and 0.3 inches of snow 5 miles southwest of Watertown. A major winter storm affected Middle Tennessee from late in the evening on January 11 and through January 12 before ending early in the morning on January 13. Rain spread across the area from the evening of January 11 into the early morning hours on January 12. As an Arctic cold front moved across early on January 12, the rain briefly changed to freezing rain before becoming all snow. When snow ended late in the evening on January 12 into the early morning hours on January 13, snow accumulations ranged from none in southeast Middle Tennessee up to 6 inches in northwest Middle Tennessee.

1/15/2018 NWS employees and CoCoRaHS reports indicated 2 to around 3 inches of snow fell across Wilson County. An NWS employee measured 3.1 inches of snow 6 miles south of Gallatin, and the NWS Nashville office in Old Hickory measured 2.0 inches of snow. CoCoRaHS station Mount Juliet 4.0 SE measured 3.2 inches of snow, CoCoRaHS station Watertown 5.5 SW measured 2.5 inches of snow, and CoCoRaHS station Lebanon 10.5 ENE measured 2.0 inches of snow. A strong upper level trough combined with a powerful Arctic cold front to bring widespread snow to all of Middle Tennessee from Monday evening, January 15 through Tuesday afternoon, January 16. Snow slowly spread from northwest to southeast across the region during these two days, with the heaviest snowfall up to 7 inches affecting northwest Middle Tennessee, and the lightest amounts of 1 inch or less in southeast Middle Tennessee. In addition, much of northwest Middle Tennessee still had several inches of snow on the ground from the previous snow event just a few days early on January 12 into January 13, and the combined snow depth from the two snow events measured up to 10 inches in some areas. The Arctic cold air mass also caused temperatures to drop into the single digits and even below zero in some areas, leading to the snow as well as ice from melted snow lingering on roadways for many days. This resulted in widespread road and school closures throughout Middle Tennessee, with nearly all school districts cancelling classes for the entire week.

3/8/2018 Up to around one half inch of snow was measured across Wilson County. CoCoRaHS station Lebanon 2.7 SSE measured 0.6 inches of snow, CoCoRaHS station Green Hill 0.3 N measured 0.5 inches of snow, and CoCoRaHS station Lebanon 8.4 SSW measured 0.5 inches of snow. Another clipper system just one day after a previous one brought more light snow to the Upper Cumberland and parts of

northern Middle Tennessee. Up to 1 inch of snow was measured in some areas.

3/12/2018 Up to two inches of snow fell across Wilson County. CoCoRaHS station Watertown 5.5 SW measured 1.8 inches of snow, and CoCoRaHS station Lebanon 2.7 SSE measured 0.7 inches of snow.

A strong storm system brought light snow to the northern half of Middle Tennessee and much of the Upper Cumberland in the early morning hours on March 12. Several counties reported over 2 inches of wet snow on mainly elevated surfaces.

11/11/2019 Up to a 1/2 inch of snow fell across Wilson County. CoCoRaHS station Gallatin 5.7 SSE measured 0.5 inches of snow. The NWS Nashville office in Old Hickory measured 0.4 inches of snow.

An unusually early in the season winter weather event affected northern and eastern Middle Tennessee from the evening hours on November 11 into much of the day on November 12. Rain overspread the area on November 11, with the rain mixing with sleet before changing over to light snow mainly along and north of I-40. Light snow ended for most of the area in the early morning hours on November 12, but some light snow showers continued off and on all day along the Cumberland Plateau. Total snow accumulations ranged from 1/2 inch to 1 inch for most of Middle Tennessee, but some areas in far northwest Middle Tennessee received up to 1.5 inches. Portions of the higher elevations on the Cumberland Plateau in Cumberland and Pickett Counties saw as much as 2 to 3 inches of snow.

2/6/2020 Up to 2.5 inches of snow fell across Wilson County. CoCoRaHS station Lebanon 11.5 SSE measured 2.5 inches of snow, CoCoRaHS station Mount Juliet 2.9 WSW measured 1.5 inches of snow, and CoCoRaHS station Green Hill 1.7 S measured 1.3 inches of snow. The NWS Nashville office in Old Hickory measured 0.9 inches of snow. Light snow fell across Middle Tennessee from the evening hours on February 6 through the morning hours on February 7. Nearly every county in Middle Tennessee reported measurable snowfall, with up to 3.5 inches falling on the Cumberland Plateau.

11/30/2020 Up to 1 inch of snow fell across Wilson County. CoCoRaHS station Lebanon 2.7 SSE measured 0.8 inches of snow, and CoCoRaHS station Lebanon 8.4 SSW measured 0.5 inches of snow.

A strong cold front that moved across Middle Tennessee from late on November 29 into November 30 produced widespread rain across the area. As an area of low pressure moved eastward along the front, temperatures dropped during the day allowing the rain to change over to snow before ending during the evening. Locations along and east of I-24 saw anywhere from a dusting to over 4 inches of snow, with the highest amounts falling on the northern Cumberland Plateau.

2/1/2021 Up to 0.5 inches of snow fell across Wilson County. CoCoRaHS station Lebanon 2.7 SSE measured 0.5 inches of snow. Light snow fell across the eastern half of Middle Tennessee during the morning hours on February 1. Up to 1.5 inches of snow was reported in several counties.

Frequency/Likelihood of Future Occurrence

Likely - The probability of Wilson County and its municipalities experiencing an extreme winter weather event is difficult to predict but based on historical record of 37 winter weather events since 1950, it can reasonably be assumed that this type of event can occur fairly often. Therefore, the HMPC calculated that there is a high probability that this type of event will occur each year.

C. Vulnerability Assessment
Likelihood of Future Occurrence— Likely
Vulnerability— Moderate

In the county, road traveling conditions, electrical lines, and agricultural functions are some of the most vulnerable features. Wilson County uses a ranking system to determine each jurisdiction's vulnerability to freezes/winter storm events. This system is based off simple arithmetic which analyzes potential impacts to determine vulnerabilities and then analyzes the probability of a freeze/winter storm event occurring to calculate a risk ranking for each jurisdiction.

In evaluating the risk of winter storms, jurisdictions viewed incidents that impacted day-to-day business as opposed to all incidents indicated by the NCDC.

Jurisdiction/Applicant	Impacts			Vulnerability $H+P+B-\#; \#/3=V$
	Human	Property	Business	
Wilson County	2	2	2	2.00
Wilson County School District	2	2	2	2.00
City of Watertown	2	2	1	1.66
City of Lebanon	2	3	1	2.00
Lebanon Special School District	2	3	1	2.00
City of Mt. Juliet	1	4	2	2.33

Jurisdiction/ Applicant	Vulnerability	Probability	Risk $V+P=R$	
Wilson County	2.00	1	3.00	Low
Wilson County School District	2.00	4	6.00	Medium
City of Watertown	1.66	1	2.66	Low
City of Lebanon	2.00	3	5.00	Moderate
Lebanon Special School District	2.00	3	5.00	Moderate
City of Mt. Juliet	2.33	5	7.33	High
			Risk	
			Low	2-3.6
			Moderate	3.7-5.2
			Medium	5.3-6.8
			High	6.9-8.4
			Severe	8.5-10

Human	
<i>Risk of Injuries and Death from the Hazard</i>	
1	Death very unlikely, injuries are unlikely
2	Death unlikely, injuries are minimal
3	Death unlikely, injuries may be substantial
4	Death possible, injuries may be substantial
5	Deaths probable, injuries will likely be substantial

Property	
<i>Amount of Residential Property Damage Associated from Hazard</i>	
1	Less than \$500 in damages
2	\$500-\$10,000 in damages
3	\$10,000-\$500,000 in damages
4	\$500,000-\$2,000,000 in damages
5	More than \$2,000,000 in damages

Business	
<i>Amount of Business Damage Associated from the Hazard</i>	
1	Less than 3 businesses closed for only a day
2	More than 3 businesses closed for a week
3	More than 3 businesses closed for a few months
4	More than 3 businesses closed indefinitely or relocated
5	A top-10 local employer closed indefinitely

Probability	
<i>Amount of Residential Property Damage Associated from Hazard</i>	
1	Less than once every 10 years
2	About once every 5-10 years
3	About once every 2-5 years
4	About once a year
5	More than once a year

D. Land Use & Development

Throughout the county many buildings and the majority of infrastructure networks can be vulnerable to winter storm impacts. Wilson County's building stock can be broken down into the following percentage categories: 77% residential, 9% commercial, 4% industrial, 5% agricultural, 1% governmental, 3% religious, and 1% educational. Many of these structures wouldn't receive direct impacts from winter storms but they could receive indirect impacts such as downed electrical lines that cut off electricity to the structures, frozen pipelines that crack, destroyed agriculture crops, and customers not being able to access travels to the structures due to ice covered roads.

E. Multi-Jurisdictional Differences

Due to the nature of winter conditions, Wilson County and the incorporated jurisdictions are equally susceptible to winter weather conditions.

F. Summary

Wilson County and the incorporated jurisdictions are equally vulnerable to winter weather. Extreme snow, ice or sleet can affect people's health and safety. Therefore, it is important to have proper measurements in place to prevent critical structure from being vulnerable to cut off electricity during below freezing temperatures.

3.0 Mitigation Strategy

Requirement §201.6(c)(3): [The plan shall include] a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

This section describes the mitigation strategy process and mitigation action plan for the Wilson County and the incorporated jurisdictions Hazard Mitigation Plan Update.

3.1 Mitigation Strategy: Overview

The results of the planning process, the risk assessment, the goal setting, and the identification of mitigation actions led to the mitigation strategy and mitigation action plan for this HMP. Section 3.2 below identifies the goals and objectives of this plan and Section 3.4 details the new mitigation action plan.

3.1.1 Continued Compliance with the NFIP

Given the flood hazards in the planning area, an emphasis will be placed on continued compliance with the NFIP. The following steps will be taken by each participating community in order to meet or exceed the following minimum requirements as set by the NFIP:

- Issuing or denying floodplain development/building permits
- Inspecting all development to ensure compliance with the local ordinance
- Maintaining records of floodplain development
- Assisting in the preparation and revision of floodplain maps
- Helping residents obtain information on flood hazards, floodplain map data, flood insurance and proper construction measures

3.2 Goals and Objectives

Requirement §201.6(c)(3)(i): [The mitigation strategy section shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Chapter 2 documents the various natural hazards and associated risks that threaten Wilson County and the incorporated jurisdictions including the vulnerability to structures, infrastructure, and critical facilities. The intent of goal setting is to identify areas where improvements to existing capabilities (policies and programs) can be made so that community vulnerability is reduced. Goals are also necessary to guide the

review of possible mitigation measures. Mitigation goals need to reflect community priorities and should be consistent with other plans in the community.

Goals are general guidelines that explain what is to be achieved. They are usually broad-based policy type statements, Wilson term and represent global visions. Goals help define the benefits that the plan is trying to achieve.

3.2.1 Goal Setting Exercise

In 2016, the HMPC agreed upon the goals for their hazard mitigation plan. It was decided that some goals from the 2016 plan should be carried over into the 2021 plan. They still reflect some the current hazards and current conditions in the community.

3.2.2 Resulting Goals

At the end of the exercise, the HMPC agreed upon three general goals for this planning effort. The refined goals are as follows:

1. Protect the lives and health of citizens from the effects of natural hazards.
2. Emphasize mitigation planning to decrease vulnerability of existing and new structures.
3. Encourage public support and commitment to hazard mitigation, by communicating mitigation benefits.

3.3 Identification and Analysis of Mitigation Activities

Requirement §201.6(c)(3)(ii): [The mitigation strategy section shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

In order to identify and select mitigation projects to support the mitigation goals, each hazard identified in Section 2.1 Hazard Identification was evaluated. The HMPC then analyzed viable mitigation options that supported the identified goals and objectives. The HMPC reviewed a PowerPoint presentation and handout covering potential mitigation actions for each of hazards identified.

The HMPC was also provided with FEMA's *Mitigation Ideas* guidance document dated January 2013 which provides example mitigation actions organized by natural hazard. The HMPC was instructed to consider both future and existing buildings in evaluating possible mitigation actions and to also consider including projects from other plans and studies within the community. A facilitated discussion then took place to examine and analyze the options. This discussion was followed by a brainstorming session that generated a list of preferred mitigation actions by hazard.

3.3.1 Prioritization Process

Once the mitigation actions were identified, the HMPC was provided with several decision-making tools, including FEMA's recommended prioritization criteria, SAFE-T, to assist in deciding why one

recommended action might be more important, more effective, or more likely to be implemented than another. To qualify as a mitigation project, the hazard needed to be identified anything above a “low risk” in the community. After that all projects needed to follow the SAFE-T Method which stands for the following:

Project Prioritization Method: SAFE-T			
Variable		Value	Description
S	Societal: The public must support the overall implementation strategy and specified mitigation actions. The projects will be evaluated in terms of community acceptance and societal	1	Low community priority, few societal benefits
		2	Moderate community acceptance / priority
		3	High community acceptance / priority
A	Administrative: The projects will be evaluated for anticipated staffing and maintenance requirements to determine if the jurisdiction has the personnel and administrative capabilities necessary to implement the project or whether outside help will be needed.	1	High staffing, outside needed
		2	Some staffing, help may be needed
		3	Low staffing, no outside help needed
F	Financial: The projects will be evaluated on their general cost-effectiveness and whether additional outside funding will be required	1	Somewhat cost-effective
		2	Moderately cost-effective
		3	Very cost-effective
E	Environmental: The projects will be evaluated for any immediate or long-term environmental impacts caused by their construction or operation	1	Many environmental impacts, possibly long term
		2	Some environmental impacts, some possibly long term
		3	Few, if any, environmental impacts
T	Technical: the projects will be evaluated on their ability to reduce losses in the long-term, whether there are secondary impacts, and whether the proposed project solves the associated problem or if additional components are necessary.	1	Other actions are needed or short-term fix
		2	Other actions may be needed for long-term fix
		3	Other actions not needed, long-term fix

The process of identification and analysis of mitigation alternatives allowed the HMPC to come to consensus and to prioritize recommended mitigation actions. The HMPC discussed the contribution of the action to saving lives or property as first and foremost, with additional consideration given to the benefit-cost aspect of a project; however, this was not a quantitative analysis. The team agreed that prioritizing the actions collectively enabled the actions to be ranked in order of relative importance and helped steer the development of additional actions that meet the more important objectives while eliminating some of the actions which did not garner much support. The cost-effectiveness of any mitigation alternative will be considered in greater detail through performing benefit-cost project analyses when seeking FEMA mitigation grant funding for eligible actions associated with this plan.

3.4 Mitigation Action Plan

Requirement §201.6(c)(3)(iii): [The mitigation strategy section shall include an] action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

The Mitigation Action Plan was developed to present the recommendations developed by the HMPC for how the communities can reduce the risk and vulnerability of people, property, infrastructure, and natural and cultural resources to future disaster losses. Emphasis was placed on both future and existing development. The action plan summarizes who is responsible for implementing each of the prioritized actions as well as when and how the actions will be implemented. It should be clarified that the actions included in this mitigation strategy are subject to further review and refinement; alternatives analyses; and reprioritization due to funding availability and/or other criteria. Wilson County and the incorporated jurisdictions are not obligated by this document to implement any or all of these projects. Rather this mitigation strategy represents the desires of the community to mitigate the risks and vulnerabilities from identified hazards.

CHAPTER 2: HAZARD IDENTIFICATION AND RISK ASSESSMENT

Table 3.4 – 2021 Mitigation Action/Projects

Project Number	Action/ Project	Prioritization					Total Prioritization Score	Addresses New or Existing Buildings/ Infrastructure	Estimated Cost
		Societal	Administrative	Financial	Environmental	Technical			
1	Adoption of Codes – Residential & Industrial	2	3	3	3	2	13	New	\$5,000
2	Update Subregulations	2	3	3	3	2	13	Existing	\$40,000
3	Generator for City Building, Fire Station, Police Station & City Hall	3	3	3	3	3	15	Existing	\$300,000
4	Pump Station Generator	3	3	3	3	3	15	New	\$130,000
5	Public Awareness	3	3	3	3	3	15	Existing	\$15,000
6	Buyouts/Acquisition of Property – not FEMA notified Vesta/McCreary Rd area	3	2	3	3	3	14	Existing	\$5,000,000
7	Public Outreach	3	3	3	3	3	15	Existing	\$15,000

CHAPTER 2: HAZARD IDENTIFICATION AND RISK ASSESSMENT

Project Number	Action/ Project	Prioritization					Total Prioritization Score	Addresses New or Existing Buildings/ Infrastructure	Estimated Cost
		Societal	Administrative	Financial	Environmental	Technical			
9	Adoption of Commercial Codes	2	3	3	3	2	13	New	\$10,000
10	New County Fire Station Generators	3	3	3	3	3	15	New	\$260,000
11	10 Warning Sirens	3	3	3	3	3	15	New	\$330,000
12	Alternate EOC Generators	3	3	3	3	3	15	Both	\$200,000
13	Public Awareness At Large Events	3	3	3	3	3	15	Existing	\$10,000
14	Fire And Commercial Building Codes	2	3	3	3	2	13	New	\$10,000
15	New Bridges with increased height	3	3	3	3	3	15	New	\$3,000,000

CHAPTER 2: HAZARD IDENTIFICATION AND RISK ASSESSMENT

Project Number	Action/ Project	Prioritization					Total Prioritization Score	Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	City of
		Societal	Administrative	Financial	Environmental	Technical				
17	Update Subregulations And Stormwater Ordinances	2	3	3	3	2	13	Existing	\$50,000	City of
18	Floodwall at Lebanon Public Square	3	2	3	3	2	13	New	\$10,000,000	City of
19	Acquisition of Neal Street & Center Street Properties	3	2	3	3	3	14	Existing	\$1,500,000	City of
20	Flood proofing Historical Properties on the Lebanon Public Square	3	2	3	3	2	13	Existing	\$5,000,000	City of
21	Safe Space at 7 Schools - Lebanon Special School District	3	3	3	3	3	15	Existing	\$28,000,000	City of
22	Generators for Fire Stations 3&4, City Garage, airport, Fire Administration Bldg	3	3	3	3	3	15	Existing	\$1,300,000	City of

CHAPTER 2: HAZARD IDENTIFICATION AND RISK ASSESSMENT

Project Number	Action/ Project	Prioritization					Total Prioritization Score	Addresses New or Existing Buildings/ Infrastructure	Estimated Cost
		Societal	Administrative	Financial	Environmental	Technical			
25	Saferooms New School South Hartmann	3	3	3	3	3	15	New	\$4,250,000
26	Portable Pump Station Generator	3	3	3	3	3	15	New	\$130,000
27	Maintain Right-of-Ways	3	2	3	3	2	13	Existing	\$60,000
28	Generator for Operations Building	3	3	3	3	3	15	New	\$250,000
29	24 Schools Generators with Transfer Switches	3	3	3	3	3	15	New	\$2,400,000
30	Generators at administrative complex building	3	3	3	3	3	15	New	\$350,000
31	Saferooms at West Wilson Middle & Stoner Creek Elementary Schools	3	3	3	3	3	15	New	

CHAPTER 2: HAZARD IDENTIFICATION AND RISK ASSESSMENT

Project Number	Action/ Project	Prioritization					Total Prioritization Score	Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	
		Societal	Administrative	Financial	Environmental	Technical				
33	Mt. Juliet Elementary School Flood Wall	3	3	3	3	3	15	New	\$500,000	Wilsc
34	Flood wall for Operations Building	3	3	3	3	3	15	Both	\$500,000	Wilsc
35	Generator at Transportation building housing Fuel Supply	3	3	3	3	3	15	New	\$100,000	Wilsc
36	10 Warning Sirens at Schools	3	3	3	3	3	15	New	\$330,000	Wilsc
37	Public awareness materials	3	3	3	3	3	15	New	\$50,000	Wilsc
38	Generators - Rebuilding West Wilson Middle & Stoner Creek Elementary Schools	3	3	3	3	3	15	New	\$200,000	Wilsc
39	Acquisition of flood-prone areas	3	2	3	3	3	14	Both	\$52,000,000	

CHAPTER 2: HAZARD IDENTIFICATION AND RISK ASSESSMENT

Project Number	Action/ Project	Prioritization					Total Prioritization Score	Addresses New or Existing Buildings/ Infrastructure	Estimated Cost
		Societal	Administrative	Financial	Environmental	Technical			
41	Saferooms in all city buildings	3	3	3	3	3	15	Both	\$350,000
42	Generators for Fire Stations & Pump Stations	3	3	3	3	3	15	Both	\$465,000
43	Warning signs posted on flood-prone areas	3	2	3	3	3	14	Existing	\$5,000
44	Public outreach with text messaging service	3	3	3	3	3	15	New	\$500
45	New City Hall with saferoom and generator	3	3	3	3	3	15	New	\$200,000
46	Creation of Stormwater Utility	3	3	3	3	3	15	Both	\$1,500,000
47	3 Warning sirens for higher-density areas	3	2	3	3	3	14	New	\$99,000

4.0 Plan Integration and Maintenance

Requirement §201.6(c)(4): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

This section provides an overview of the overall strategy for plan integration and maintenance and outlines the method and schedule for monitoring, evaluating, and updating the plan. The section also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement.

4.1.1 Integration into Local Planning Mechanisms

An important implementation mechanism that is highly effective and low-cost is incorporation of the Hazard Mitigation Plan recommendations and their underlying principles into other plans and mechanisms. Where possible, plan participants will use existing plans and/or programs to implement hazard mitigation actions. As previously stated, mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government and development. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. These existing mechanisms include:

- Building Codes
- Emergency Management Plans
- Zoning Ordinances
- Flood/Stormwater management/master plans
- Other plans, regulations, and practices with a mitigation focus

Those involved in these other planning mechanisms will be responsible for integrating the findings and recommendations of this plan with these other plans, programs, etc., as appropriate. As described in Section 1.6.2 Implementation, incorporation into existing planning mechanisms will be done through the routine actions of:

- Monitoring other planning/program agendas;
- Attending other planning/program meetings;
- Participating in other planning processes; and
- Monitoring community budget meetings for other community program opportunities.

The successful implementation of this mitigation strategy will require constant and vigilant review of existing plans and programs for coordination and multi-objective opportunities that promote a safe, sustainable community. Efforts should continuously be made to monitor the progress of mitigation actions implemented through other planning mechanisms and, where appropriate, their priority actions should be incorporated into updates of this Hazard Mitigation Plan.

4.2.1 Monitoring, Evaluation, Updating

For the Hazard Mitigation Plan update review process, the Wilson County Emergency Management Agency will be responsible for facilitating, coordinating, and scheduling reviews and maintenance of the

plan. The review of the Hazard Mitigation Plan will be conducted as follows:

- The Wilson County Emergency Management Agency will be responsible for leading the meeting to review the plan.
- Notices will be emailed to the members of the HMPC, federal, state, and local agencies, non-profit groups, local planning agencies, and representatives of business interests, neighboring communities, and others advising them of the date, time, and place for the review.
- Local City officials will be noticed by email.
- Prior to the review, department heads and others tasked with implementation of the various activities will be queried concerning progress on each activity in their area of responsibility and asked to present a report at the review meeting.
- A copy of the current plan will be available for public comment.
- After the review meeting, a status report will be developed outlining implementation of projects over the past year.

Criteria for Annual Reviews

The criteria recommended for annual reviews will include the following:

- Community growth or change in the past year.
- The number of substantially damaged or substantially improved structures by flood zone.
- The renovations to public infrastructure including water, sewer, drainage, roads, bridges, gas lines, and buildings.
- Natural hazard occurrences that required activation of the Emergency Operations Center (EOC) and whether or not the event resulted in a presidential disaster declaration.
- Natural hazard occurrences that were not of a magnitude to warrant activation of the EOC or a federal disaster declaration but were severe enough to cause damage in the community or closure of businesses, schools, or public services.
- The dates of hazard events descriptions.
- Documented damages due to the event.
- Closures of places of employment or schools and the number of days closed.
- Road or bridge closures due to the hazard and the length of time closed.
- Assessment of the number of private and public buildings damaged and whether the damage was minor, substantial, major, or if buildings were destroyed. The assessment will include residences, mobile homes, commercial structures, industrial structures, and public buildings, such as schools and public safety buildings.
- Review of any changes in federal, state, and local policies to determine the impact of these policies on the community and how and if the policy changes can or should be incorporated into the Hazard Mitigation Plan. Review of the status of implementation of projects (mitigation strategies) including projects completed will be noted. Projects behind schedule will include a reason for delay of implementation.

4.2.2 Continued Public Involvement

Continued public involvement is imperative to the overall success of the plan's implementation. The update process provides an opportunity to solicit participation from new and existing stakeholders and to

publicize success stories from the plan implementation and seek additional public comment. The plan maintenance and update process will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, press releases to local media, and through public hearings.

Public Involvement Process for Annual Reviews

The public will be notified via the Wilson County website, Facebook and any other form of well publicized social platform.

Public Involvement for Five-year Update

When the HMPC reconvenes for the five-year update, they will coordinate with all stakeholders participating in the planning process—including those that joined the committee since the planning process began—to update and revise the plan. In reconvening, the HMPC will develop a plan for public involvement and will be responsible for disseminating information through a variety of media channels detailing the plan update process. As part of this effort, public meetings will be held and public comments will be solicited on the plan update draft.

Appendix A

Community Assessment



2020 Annual Report

Compiled & Presented in April 2021

Joint Economic & Community Development Board

Executive Directors Message

The year of 2020 will probably be studied, analyzed and written upon for generations to come. Most of the works will center upon not just the normal events but of the many unforeseen events that occurred throughout middle Tennessee. Of importance, will be how communities addressed the new health concerns, changes of how business adapted, how students were educated and even how our communities socialized and worshipped.

When the writers work is complete, I hope it contains the story of Wilson County, Tennessee. The story that includes the journey of a county that dealt not only with the effects of COVID-19 but the devastation of a March tornado. Let it show the support and expressed concerns and love shown by not only our citizens but friends from around the region, state and nation. Let it show the resolve of the business community, of our community leaders, of elected officials and our local governments who stood strong and in unison both then and today. Wilson County's chapter might be one that may not be fully understood nor appreciated for years to come.

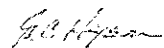
Events of 2020 redefined the "norm" for many sectors. This was especially true in the economic development community. The JECDB assisted in the relocation of over 2.5 million square feet of manufacturing/distribution space in the initial recovery period. We have seen that our ecommerce locations must now address last mile delivery demands while adding retail sales and additional local services. Using our location advantages our community saw expansions in the manufacturing sectors including of medical and technology products. These locations, trends and area economic advantages are quickly placing this community in a position of strength for data storage and management as well as other professional developments.

I prefer to view last year as a "Year of Resiliency". A year in which Wilson County's Spirit did not die nor waver. A year that saw community advances and economic successes. It was a year that saw the expansion of Vanderbilt Hospital services, increases in sales tax collections and strong investments in both residential and industrial sectors. I hope that this document provides insights to some of the positive economic events of 2020 while also confirming the strength and diversity of our local economy.

It is reassuring to know that the certain events of 2020 did not and will not negatively define us. It is in fact, comforting to know that those events further confirmed us as a community of choice. Perhaps some of our tragic events while devastating, can be viewed as short term while our reactions and continual responses will be viewed forever. I think 2020 will indicate that Wilson County and its communities not only survived but prospered due to leadership that did the right thing, that made the difficult decisions, that cared for others and stayed the course during unknown and daunting times.

It has been said that "real" economic development only occurs at the local level. The year of 2020 certainly confirmed this belief. As your Director, I have had the opportunity to work with the most dedicated, intelligent and caring individuals. For that, I will be forever grateful. Now on to 2021 and beyond, times which this office sees great promise and opportunities. With your support, directions and commitments we continue to contribute to Wilson County, Tennessee "The Place to Be."

Sincerely,



G.C. Hixson, CECD
Executive Director

Board of Directors

PURPOSE OF THE BOARD

As stated in the interlocal agreement that created the Joint Economic & Community Development Board of Wilson County, the purpose and mission of the Board shall be as follows: To develop, recommend, and direct a strategic plan of policies and action that improve the economic well-being of the community and those activities and services which support economic growth and improve the quality of life of the community's members; To encourage an entrepreneurial spirit among present businesses and citizens; To help spawn expansions of local industry and businesses; To seek out those enterprises which support the development of the future as outlined in the strategic plan for the purpose of enticing them to locate in Wilson County; To foster an open communication among all groups in the county concerned with economic development including, but not limited to: residents; present industry and businesses; governments; educators; public and private developers; and other public organizations.

Board of Directors		Ex-Officio Members	
Randall Hutto	Brandy Holcomb	Melanie Minter	Aaron Maynard
Sue Vanatta	Scott Jasper	Austin Floyd	Tom Brashear
Sonja Robinson	Rob Porter	Mark Hinesley	Mark Pody
Bobby Franklin	Lynn Daugherty	Dr. Donna Wright	Susan Lynn
Rick Bell	Tom Nelson	Scott Benson	Clark Boyd
Chris Crowell	Eddie Goodwin	Phil Smartt	Mae Wright
Camille Burdine	John Bryan	Dr. Paul Stumb	
Kenneth Martin	Luke Winchester		
Ray Justice	Caleb Thorne		
Mike Jennings			

Officers of The Board

Caleb Thorne, Chairman

Rob Porter, Vice-Chairman

Tammy Stokes, Secretary

Phil Smartt, Treasurer

Robert Rochelle, Attorney

Executive Committee

RESPONSIBILITIES OF THE EXECUTIVE COMMITTEE

The Executive Committee has the following responsibilities: administer the policies of the Board; recommend an annual operating budget to the Board; recommend the hiring and/or termination of the Director of the organization; supervise the daily operations of the organization and the Director of the organization; hold regular meetings the frequency of which should be at least monthly; meet on call as often as needed in addition to monthly meetings; suspend, without pay, the Director of the organization pending action of the Board; and select officers of the Executive Committee.

Executive Committee

Randall Hutto

Rick Bell

Mike Jennings

Kenny Martin

John Bryan

Officers of The Executive Committee

Mike Jennings, Chairman

Tammy Stokes, Secretary

Phil Smartt, Treasurer

Robert Rochelle, Attorney

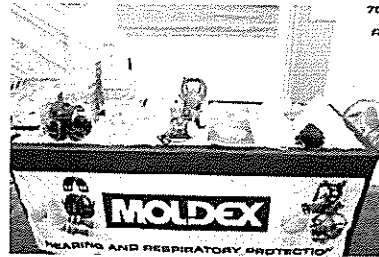
Industrial Development

Moldex-Metric, Inc.

A California company that specializes in hearing and respiratory protective equipment expanded into Lebanon with the aim to provide more approximately 220 new jobs.

Moldex-Metric retrofitted and moved into a recently vacated facility that is approximately 90,000 square feet

on about 21 acres on Innovative Way near State Route 109. The company also plans to construct a new building adjacent to the current facility on the site. Moldex plans to start manufacturing in Lebanon by early 2021 and will initially focus on making N95 respirators primarily used for healthcare and first response workers. Moldex's initial investment, estimated at around \$25 million, is expected to jump to more than \$30 million with the new building.



Cold Chain Technologies

Cold Chain Technologies is an international provider of reusable and single-use thermal packaging solutions for the shipment of temperature sensitive material, mainly serving the life-sciences supply chain. As part of Cold Chain Technologies' planned expansion to meet the growing demands of global vaccine distribution, they unveiled their new facility in Lebanon in 2020. With over 255,000 square

feet, 17 water-based gel lines, and 13 KoolTemp EcoFlex 96 work cells, the new plant employs 262 people.

A Winning Partnership Chooses Lebanon

KIND, a manufacturer of specialty nutritional snacks and Federal Express combined in 2020 to locate in a new 379,000 square foot distribution and ecommerce center in Lebanon. KIND, has been described as a unique food product company that was founded upon its commitment of "bringing wholesome and delicious snacks by using the highest quality ingredients that are both "healthy and tasty- not one or the other" to the market. KIND sought out locations and partners throughout the region that would provide the operation not just of a superior location but the ability to find a partner that was equally committed to providing their quality products to retail outlets throughout an expanding service area. The new partnership located in the Nashville East Logistics Center located at the intersection of I-840 and Couchville Pike.

Industrial Development



Addition of the Amazon Delivery Station

While the Mt Juliet massive Amazon logistic center becomes operational in 2021 the project was not Amazon's only investment made by the company in Wilson County. The Amazon Delivery Station located in the Speedway Industrial Park off I-840 serves as

a major cog in the company's logistic network. The 600,000 square foot facility accepts inbound packages from larger Amazon facilities and sorts and places them into delivery vans. This process is identified as one of the final stages of the Amazon fulfillment system and is appropriately identified as the "last mile" station. This stage has quickly become one of the vital steps in the e-commerce system and provides opportunities for both reduced shipping and handling costs as well as time from order to delivery.

AMAZON FULFILLMENT CENTER

A massive distribution facility in Wilson County was announced and began construction in 2020. The 3.6 million sf Mt Juliet Amazon Fulfillment Center with five stories and a height of 92 feet will have an estimated \$250M in real property and \$150M in personal property investments. It is also estimated that the



operation will require up to 3,000 employees. Of these positions it is estimated that the operations will require over 100 new management positions which will be housed in its 75-100,000 square foot office/administrative space. The operation is estimated to provide \$1M per year in Wilson County real property tax per year and over \$4M in person property taxes for the first seven years of operations. The facility will have a mix of employees and robotic operations.

Significant News of 2020

Speedway Industrial Park Developments

One of Wilson County's major economic engines continued their development in 2020. While serving the immediate needs of some of the displaced industries, the Speedway Industrial Park saw the construction and development of over 1.5M square feet of new product. Industries locating in the park included Cold Storage (distribution of COVID Vaccine) , Federal Express and others. The Panattoni Development Company also closed on an additional 130 acres for their Phase II development. Site prep and infrastructure work will occur in 2021 with delivery of their first facility in the 2nd quarter of 2022. It is projected that over five million square feet could be provided in this phase.

Wilson Works

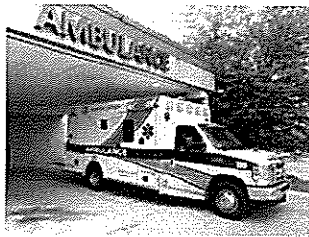
Through a cooperative effort of both public and private participants, Wilson Works held its launch in 2020. With a goal of defining and improving the pathways from training to available jobs the project was coordinated through the efforts of the Lebanon/Wilson County Chamber of Commerce. The JECDB participated in the initial program design, hiring of its first director and development of initial work schedules and goals.

JECDB Director, G. C. Hixson will also serve on the Executive Committee and Board of Directors. The overall goal of the program will be to develop a clearer, more defined organizational structure that will coordinate the efforts of local industries, the Wilson County Schools System Career and Technical Education programs, Cumberland University, Volunteer State Community College and other public and private educational entities across middle Tennessee. This new program will seek to strengthen the pathway from employer to qualified employees. Interested parties can learn more about the program by visiting Wilson Works at its website www.wilsonworkstn.org.

Significant News of 2020

Vanderbilt Health Expansion

While location consultants and company executives may differ the components of “quality of life”, all agree that health care is and will remain a major component of its makeup. An aging population, baby boomers leaving the work sectors and the changing designs and services of private and public programs, have and will keep health care a major consideration in projects final selection, relocations and/or expansions. The continual investments and commitments of Vanderbilt Health throughout Wilson County was another major economic event in 2020.



Fortunately, the initial entry by Vanderbilt Health in 2019 served as only a beginning. In 2020, Vanderbilt Health brought multiple additional services to the community. One of these new additions was the Vanderbilt Women Health Center in Lebanon, TN. The new center located at 1616 W. Main Street offers multiple women’s health services including pregnancy and delivery services. The center prides itself in offering a “continuity of care” for patients and children through onsite doctors, certified nurses and midwives.

Another major addition to medical services occurred on August 31, 2020 when the Vanderbilt-Ingram Cancer Center of Wilson County began offering comfort and state of the art services. The center can provide treatment options unique to the individual patient by internationally renowned technicians and physicians. The center is designed to provide better service to people in both Wilson and surrounding counties through a closer and more convenient cancer care facility. The



center has been described as not a clinic but a full-fledged multi-disciplinary Vanderbilt - Ingram Cancer Center. The center is equipped with the latest treatment technologies and is one of only four centers in the nation having the Ethos radiotherapy system. This system integrates imaging with treatment delivery and allowing oncologists the opportunity to see changes in the patient’s anatomy.

Education Overview 2019-2020

Wilson County Schools K-12		Private Schools K-12	
Elementary Schools	13	Schools	4
Middle Schools	4	TOTAL ENROLLMENT	1,285
High Schools	4	Higher Education (Four Year)	
TOTAL ENROLLMENT	18,935	Cumberland University (Lebanon)	
Lebanon Special School District K-8		TOTAL ENROLLMENT	2,704
Elementary Schools	4	Technology Center	
Middle Schools	2	TN College of Applied Technology (Lebanon)	
TOTAL ENROLLMENT	3,812		

The Wilson County School District is recognized by the Tennessee Department of Education for being an Exemplary District, the highest ranking available. In addition, twelve of the twenty-one eligible schools received Reward School Status.

The Lebanon Special School District is a high performing district gaining Level 5 recognition for six of the past seven years as well as acknowledgement as an "Exemplary District" by the state of Tennessee for two of the last three years with a current status of "Advancing".

Graduation Rates

Wilson County School District had a 96.1 percent graduation rate, well above the state average of 89.7 percent. Mt. Juliet High School had the district's highest graduation rate at 97.1 percent while Wilson Central High School was 96.7 percent. Watertown High was 95.9 percent and Lebanon High 94.5 percent.

ACT Scores

Wilson County Schools ACT college entrance exam scores for 2019-2020 ranked 12th out of 127 public school districts, according to results from the Tennessee Department of Education. Seniors in the 2020 graduating class had an overall composite average of 21.5 on the exam, up from a 20.9 average by the 2019 graduating class. The state average ACT score was 19.9.

Population

Wilson County is one of the Fastest Growing Counties in the State of Tennessee

Area	Population Statistics					Census 2010
	July 1, 2019	July 1, 2018	July 1, 2017	July 1, 2016	July 1, 2015	April 1, 2010
Wilson County	144,657	140,954	136,691	132,494	128,536	113,993
Lebanon	36,479	35,371	32,498	31,293	30,174	26,190
Mt. Juliet	37,029	35,661	34,654	33,119	31,391	24,548
Watertown	1,523	1,512	1,527	1,514	1,504	1,477

Source: U.S. Census Bureau

- Tremendous economic and job growth over the last decade
- Populating growth averaged almost 3% per year over last decade
- Projected 2025 population is 169,371 residents

2020 Real Estate Numbers

2020 Building Permit Activity

Single-Family Homes

Month	Wilson County	Lebanon	Mt Juliet
January	33	50	29
February	17	33	40
March	31	50	61
April	32	70	56
May	32	37	57
June	54	73	64
July	25	70	57
August	33	61	53
September	38	59	44
October	22	84	67
November	24	57	70
December	43	85	79
TOTALS	384	729	677

****Wilson County includes Watertown**



Traditions at Hamilton Springs – a 55 & Better Community located in Lebanon

Commercial Permits

Month	Wilson County	Lebanon	Mt Juliet
January	2	5	4
February	5	3	2
March	1	0	4
April	1	4	4
May	0	15	2
June	0	1	0
July	3	2	0
August	0	6	2
September	0	6	2
October	2	1	1
November	1	5	0
December	1	1	1
TOTALS	16	49	22



Vintage Station North – 220 apartment complex located in Mt. Juliet

Residential Real Estate

Wilson County home sales continued to rise with 3,426 residential homes being sold in 2020. This is an increase of 9.4 percent. Also, median home prices rose in 2020 by 9.4 percent to \$355,559. On average, 285 homes closed each month of 2020. Homes were on the market a median of 25 days.

Source: Eastern Middle Tennessee Association of Realtors

New in Lebanon

Kroger expansion: A 40,000-square-foot expansion plan for the Kroger store on West Main Street was approved in 2020. Completion is estimated for late 2021 with the expansion expected to create about 30 additional jobs. Plans also include an expansion of the fuel station at the West Main Street location with work projected to start in July and finish in the early fall.



New in Mt. Juliet

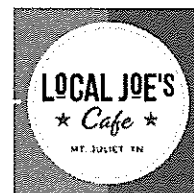
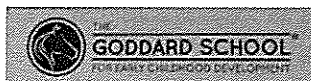
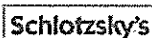


The 124-suite Residence Inn by Marriott in Mt. Juliet opened in 2020. The hotel offers only studio and one-bedroom suites. Designed for stays of five nights or more, each suite also has a fully-equipped kitchen with a coffeemaker, microwave oven and residential-sized appliances.

The hotel is pet-friendly and provides guests with a large business center, an indoor swimming pool, an outdoor patio with a fire pit, a large fitness center and putting green. Other amenities include a full-service bar serving small bites and two meeting rooms with a combined 1,900 square feet of meeting space.



inTune Chiropractic



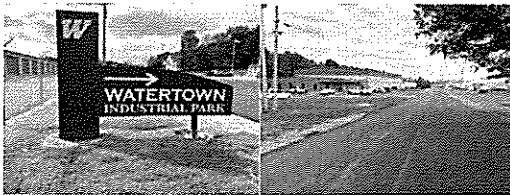
New in Watertown



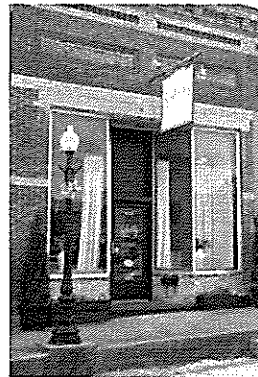
R & D Services, Inc. found its new corporate and testing operation center in Watertown in 2020. The company, founded upon the goal and mission of providing both accurate and efficient testing for the insulation industry started in the basement of Ron Graves home in Lenoir City, TN with his partner Dr. David Yarbrough. The company has grown to be recognized as one of the leaders in the insulation testing and evaluation industry.

Relocating from its previous home of 17 years in Cookeville, TN the company relocated into its brand-new state of the art facility in Watertown, TN . This location will allow for expansion of its core businesses which include the testing, consulting, engineering, code compliance inspection legal testimony and much more. It will also allow the opportunity to grow its services to meet the needs of an ever-growing list of national and international clients.

The facility is located at 209 West Main Street, Watertown, TN. Further information can be seen at <https://rdservices.com/>



The city of Watertown was the recipient of a Tennessee Central Economic Alliance economic development grant in 2020. The Tennessee Central Economic Alliance formerly known as the Four Lake Regional Industrial Development Authority serves the five counties in northern middle Tennessee through services and grants. The JECDB served as the grant coordinator and was responsible for the application that led to the \$94,443.55 project. The grant provided funding for the repaving of roads in and around the Watertown Industrial Park. The work was contracted through the Wilson County Road Commission with matching funds provided by the Wilson County Industrial Development Board. The work is expected to improve the marketability of the existing industrial tracts as well and to provide safer and improved services to the commercial and industrial clients in the park.



Retail Sales

Local Option Sales Tax Revenue Collections			
County/City Name	2019	2020	% Change
Wilson County	\$7,437,913	\$7,752,806	4.23%
Lebanon	\$26,017,030	\$32,287,997	24.10%
Watertown	\$414,264	\$555,161	34.01%
Mt. Juliet	\$22,304,522	\$27,860,067	24.91%

Wilson County, Tennessee Retail Sales Revenue Collections					
	2015	2016	2017	2018	2019
Building Materials	\$210,231,819	\$228,533,445	\$240,541,724	\$241,433,886	\$243,898,257
General Merchandise	\$263,649,885	\$277,816,608	\$290,390,598	\$293,532,056	\$315,330,395
Food Stores	\$335,061,932	\$372,443,529	\$383,602,686	\$415,400,149	\$418,446,574
Autos, Boats, Aircraft	\$486,669,829	\$788,853,328	\$986,522,613	\$809,888,733	\$678,176,957
Service Stations	\$153,177,590	\$168,046,232	\$175,846,536	\$188,402,470	\$199,513,279
Apparel & Accessories	\$78,086,382	\$78,421,158	\$76,283,943	\$73,628,623	\$73,498,618
Furniture & Home Décor	\$57,990,085	\$60,718,802	\$75,650,416	\$60,125,122	\$75,506,559
Eating & Drinking	\$201,819,170	\$213,984,030	\$227,595,198	\$225,609,831	\$256,540,983
Other Retail	\$267,609,912	\$278,109,163	\$284,201,289	\$273,118,961	\$282,768,507
Total	\$2,054,296,604	\$2,466,926,295	\$2,740,635,003	\$2,581,139,831	\$2,543,680,129

Wilson County, Tennessee Non Retail Sales Revenue Collections					
	2015	2016	2017	2018	2019
Communications	\$14,672,699	\$23,610,594	\$25,003,753	\$22,235,797	\$379,407
Wholesale	\$211,433,157	\$663,854,892	\$262,146,711	\$286,164,206	\$297,866,805
Hospitality	\$30,498,215	\$33,927,020	\$35,132,098	\$29,459,550	\$41,715,308
Auto Repair	\$50,383,152	\$56,708,597	\$60,815,477	\$55,383,861	\$69,553,609
Misc Repair	\$16,214,447	\$16,866,370	\$16,368,289	\$18,736,530	\$19,635,542
Movie	\$9,399,888	\$9,485,891	\$9,286,335	\$10,068,499	\$9,080,043
Amusements	\$10,178,348	\$10,997,127	\$11,487,849	\$10,389,162	\$10,521,263
Total	\$342,779,906	\$815,450,491	\$420,240,512	\$432,437,605	\$448,751,977

Source: State of Tennessee Department of Revenue

Recruitment Tools

The COVID-19 Pandemic definitely changed the game for Economic Development across the county and with that our office had to adapt and adapt quickly. More time and money was spent on virtual site visit presentations.



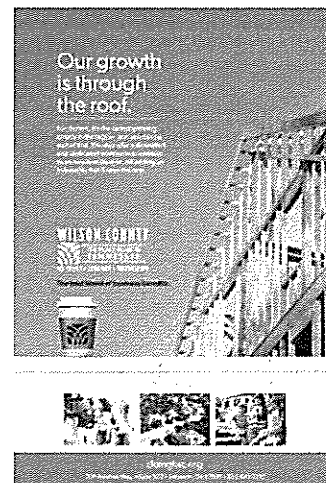
The JECDB supported local advertising in the Lebanon & Mt. Juliet Chamber magazines & purchased advertising in several national outlets.

Quality of Life Video Created



What's life like in Wilson County? It's the beauty of Tennessee outdoors, the friendly smile of a neighbor, the sound of laughter at the park, and the joy of every season of life well spent in a place called home. Simply put, Wilson County is the place to be in Tennessee.

#JECDBofWilsonCo #qualitylife
#WilsonCountyTN #LebanonTN #MtJulietTN
#WatertownTN #econdev #TeamTN



Created a new marketing ad



CONTACT US:

G.C. Hixson, CEcD
Executive Director
gchixson@doingbiz.org

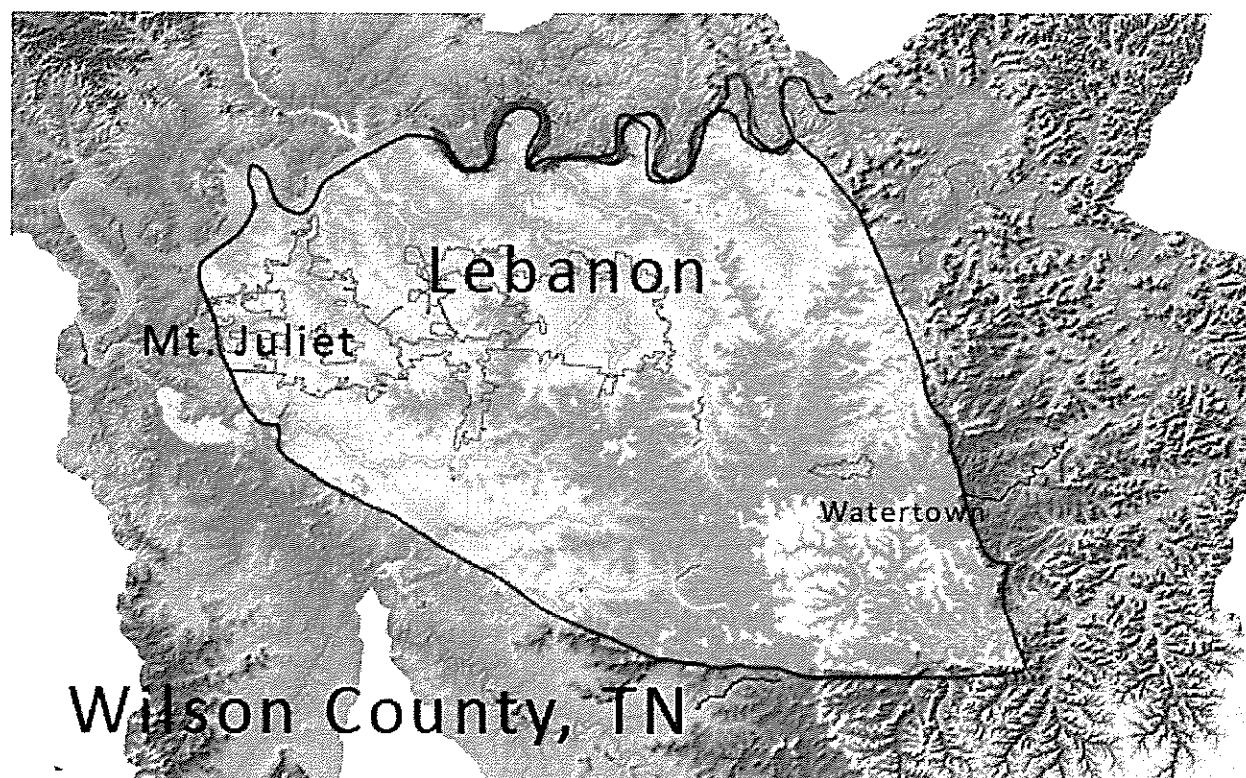
Tammy Stokes
Assistant Director
Tammy.Stokes@doingbiz.org

200 Aviation Way, Suite 202
Lebanon, TN 37090
Phone: 615.443.1210
Fax: 615.443.0277
www.doingbiz.org

Appendix B

FEMA HAZUS

Wilson County 100-Year Flood Boundaries





Hazus: Flood Global Risk Report

Region Name:	Wilson_County
Flood Scenario:	Wilson_County_100yr_Flood
Print Date:	Thursday, May 27, 2021

Disclaimer:

This version of Hazus utilizes 2010 Census Data.

Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific Flood. These results can be improved by using enhanced inventory data and flood hazard information.



FEMA

RiskMAP
Increasing Resilience Together



Table of Contents

Section	Page #
General Description of the Region	3
Building Inventory	
General Building Stock	4
Essential Facility Inventory	5
Flood Scenario Parameters	6
Building Damage	
General Building Stock	7
Essential Facilities Damage	9
Induced Flood Damage	10
Debris Generation	
Social Impact	10
Shelter Requirements	
Economic Loss	12
Building-Related Losses	
Appendix A: County Listing for the Region	15
Appendix B: Regional Population and Building Value Data	16



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 2 of 16



General Description of the Region

Hazus is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The flood loss estimates provided in this report were based on a region that included 1 county(ies) from the following state(s):

- Tennessee

Note:

Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is approximately 583 square miles and contains 3,529 census blocks. The region contains over 43 thousand households and has a total population of 113,993 people (2010 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 45,997 buildings in the region with a total building replacement value (excluding contents) of 12,629 million dollars. Approximately 92.29% of the buildings (and 78.38% of the building value) are associated with residential housing.



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 3 of 16



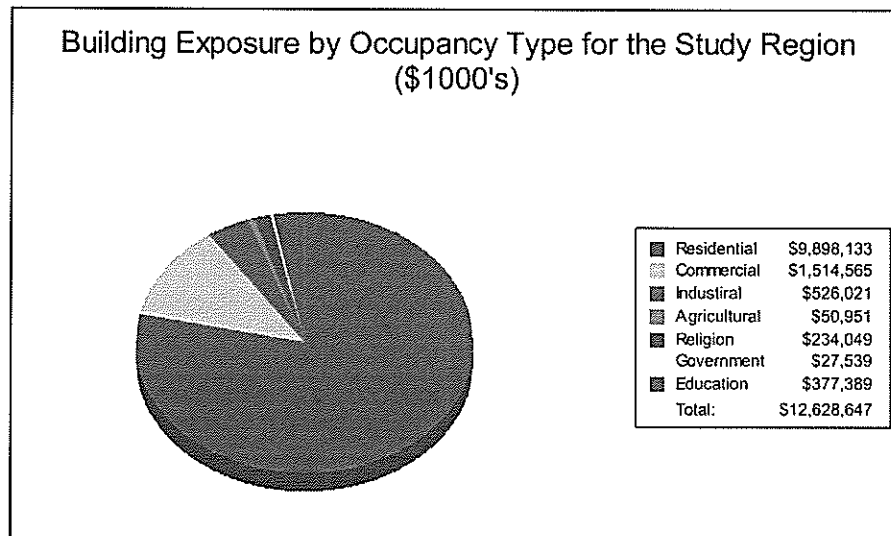
Building Inventory

General Building Stock

Hazus estimates that there are 45,997 buildings in the region which have an aggregate total replacement value of 12,629 million dollars. Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure (\$1000)	Percent of Total
Residential	9,898,133	78.4%
Commercial	1,514,565	12.0%
Industrial	526,021	4.2%
Agricultural	50,951	0.4%
Religion	234,049	1.9%
Government	27,539	0.2%
Education	377,389	3.0%
Total	12,628,647	100%



FEMA

Flood Global Risk Report

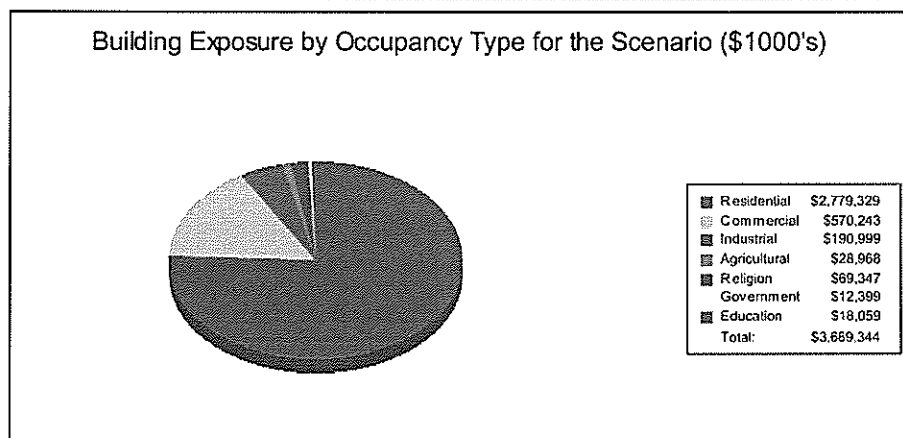
RiskMAP
Increasing Resilience Together

Page 4 of 16



Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure (\$1000)	Percent of Total
Residential	2,779,329	75.7%
Commercial	570,243	16.6%
Industrial	190,999	5.2%
Agricultural	28,968	0.8%
Religion	69,347	1.9%
Government	12,399	0.3%
Education	18,059	0.5%
Total	3,669,344	100%



Essential Facility Inventory

For essential facilities, there are 1 hospitals in the region with a total bed capacity of 225 beds. There are 29 schools, 3 fire stations, 4 police stations and no emergency operation centers.



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 5 of 16



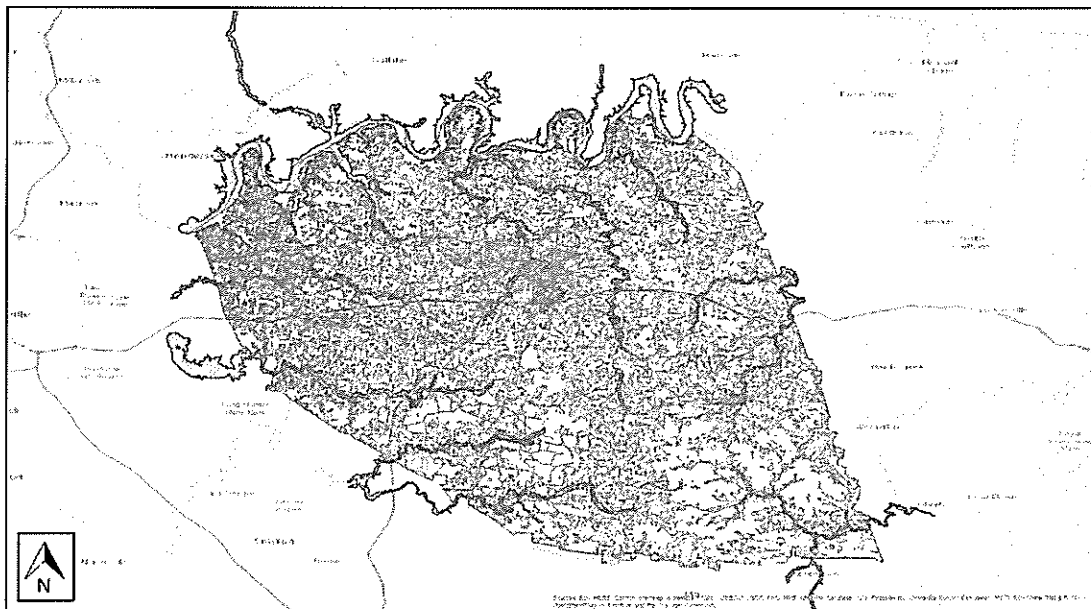
Flood Scenario Parameters

Hazus used the following set of information to define the flood parameters for the flood loss estimate provided in this report.

Study Region Name:	Wilson_County
Scenario Name:	Wilson_County_100yr_Flood
Return Period Analyzed:	100
Analysis Options Analyzed:	No What-Ifs

Study Region Overview Map

Illustrating scenario flood extent, as well as exposed essential facilities and total exposure



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 6 of 16

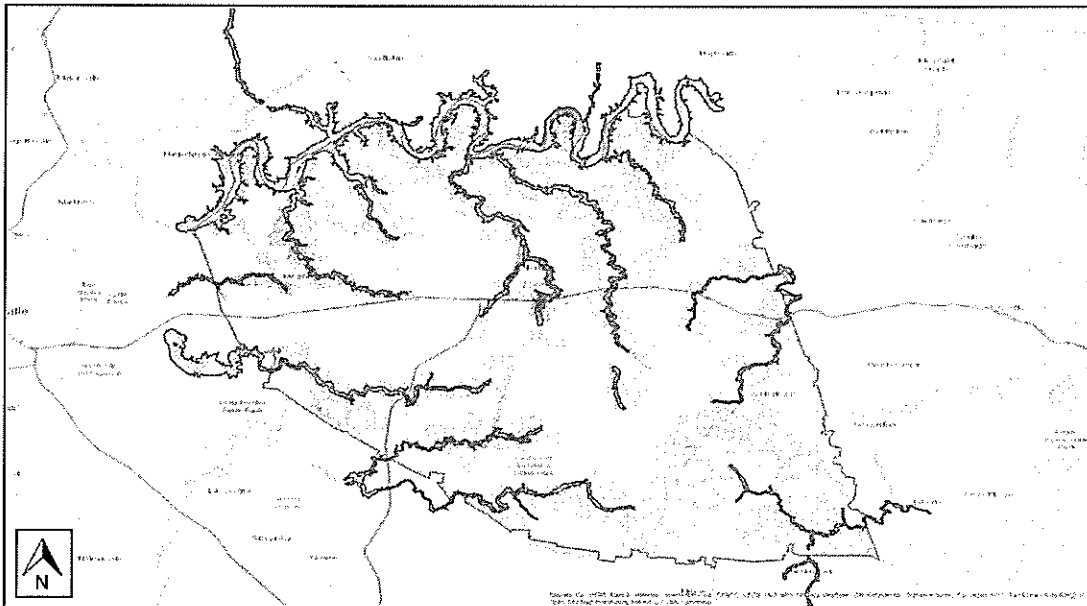


Building Damage

General Building Stock Damage

Hazus estimates that about 271 buildings will be at least moderately damaged. This is over 62% of the total number of buildings in the scenario. There are an estimated 26 buildings that will be completely destroyed. The definition of the 'damage states' is provided in the Hazus Flood Technical Manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Total Economic Loss (1 dot = \$300K) Overview Map



FEMA

Flood Global Risk Report

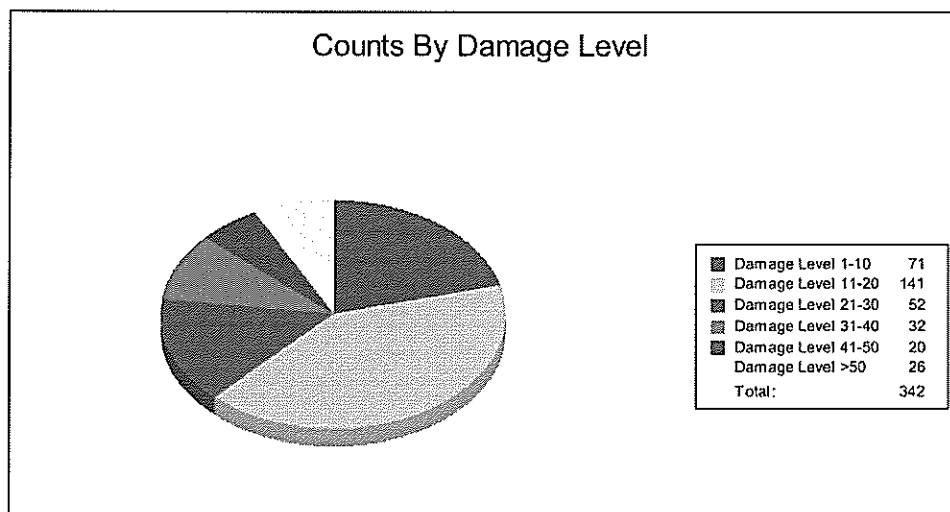
RiskMAP
Increasing Resilience Together

Page 7 of 16



Table 3: Expected Building Damage by Occupancy

Occupancy	1-10		11-20		21-30		31-40		41-50		>50	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	3	25	9	75	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	1	50	1	50	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	67	20	131	40	52	16	32	10	20	6	26	8
Total	71		141		52		32		20		26	



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 8 of 16



Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		>50	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0	0	0	0	0	0	0	0	0	0	0
ManufHousing	0	0	0	0	0	0	0	0	0	0	4	100
Masonry	2	20	0	80	0	0	0	0	0	0	0	0
Steel	1	33	2	67	0	0	0	0	0	0	0	0
Wood	68	21	129	40	52	16	32	10	20	6	22	7



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 9 of 16



Essential Facility Damage

Before the flood analyzed in this scenario, the region had 225 hospital beds available for use. On the day of the scenario flood event, the model estimates that 225 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate	At Least Substantial	Loss of Use
Emergency Operation Centers	0	0	0	0
Fire Stations	3	0	0	0
Hospitals	1	0	0	0
Police Stations	4	0	0	0
Schools	29	1	0	1

If this report displays all zeros or is blank, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

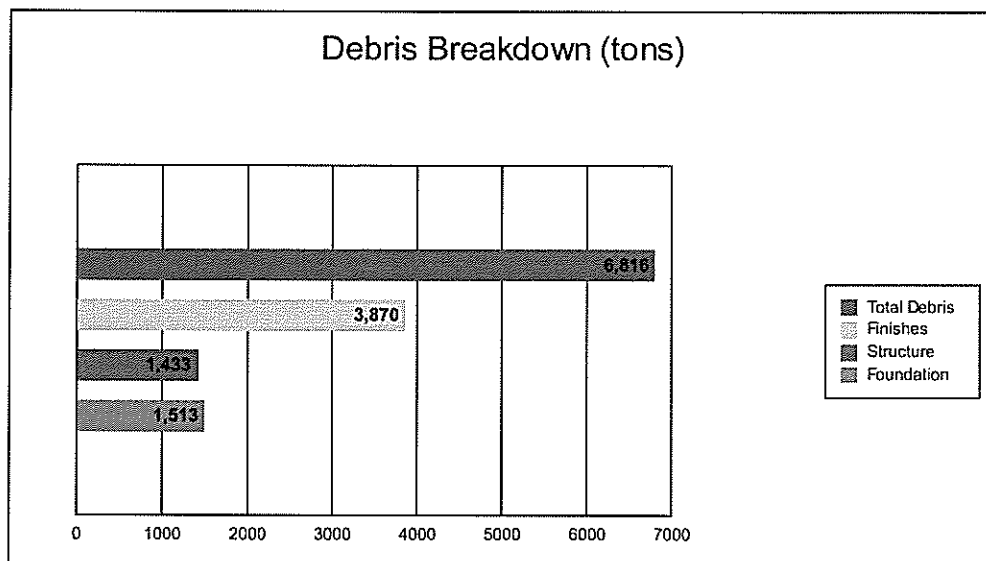
Page 10 of 16



Induced Flood Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.



The model estimates that a total of 6,816 tons of debris will be generated. Of the total amount, Finishes comprises 57% of the total, Structure comprises 21% of the total, and Foundation comprises 22%. If the debris tonnage is converted into an estimated number of truckloads, it will require 273 truckloads (@25 tons/truck) to remove the debris generated by the flood.



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

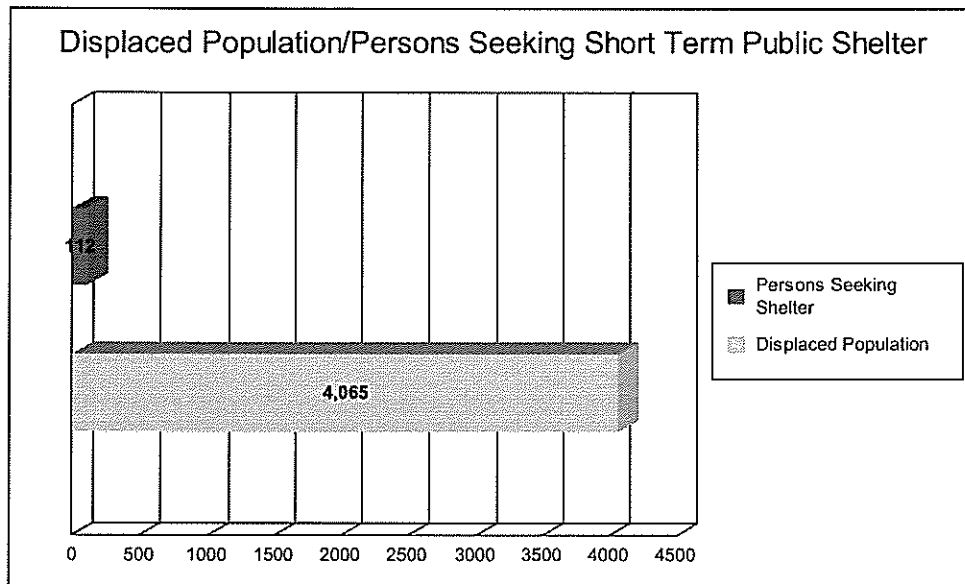
Page 11 of 16



Social Impact

Shelter Requirements

Hazus estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. Hazus also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 1,355 households (or 4,065 of people) will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 112 people (out of a total population of 113,993) will seek temporary shelter in public shelters.



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 12 of 16



Economic Loss

The total economic loss estimated for the flood is 431.00 million dollars, which represents 11.77 % of the total replacement value of the scenario buildings.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 224.54 million dollars. 48% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 33.26% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.



FEMA

Flood Global Risk Report

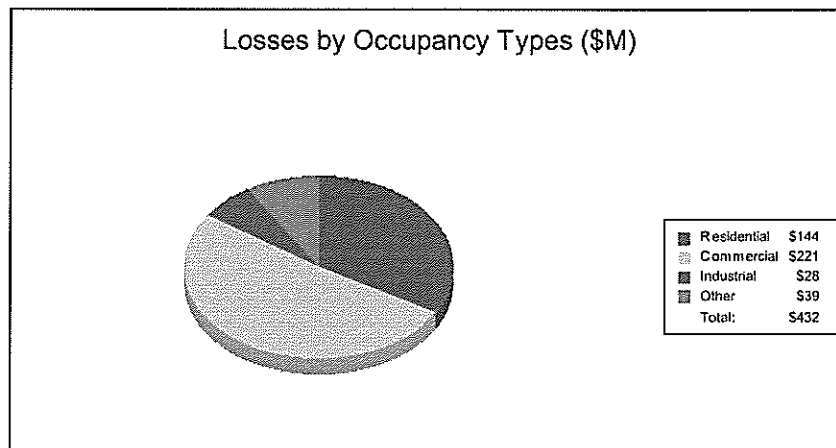
RiskMAP
Increasing Resilience Together

Page 13 of 16



Table 6: Building-Related Economic Loss Estimates
(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	65.82	19.94	7.13	2.02	94.90
	Content	35.46	63.66	15.55	10.54	125.21
	Inventory	0.00	1.62	2.63	0.17	4.43
	Subtotal	101.28	85.22	25.31	12.73	224.54
Business Interruption						
	Income	2.99	56.50	0.62	4.09	64.20
	Relocation	21.07	14.27	0.77	1.47	37.57
	Rental Income	11.31	10.42	0.13	0.15	22.01
	Wage	7.05	55.03	1.09	20.51	83.68
	Subtotal	42.42	136.22	2.61	26.21	207.46
ALL	Total	143.70	221.44	27.92	38.94	431.99



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 14 of 16



Appendix A: County Listing for the Region

Tennessee
- Wilson



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 15 of 16



Appendix B: Regional Population and Building Value Data

	Population	Building Value (thousands of dollars)		
		Residential	Non-Residential	Total
Tennessee				
Wilson	113,993	9,898,133	2,730,514	12,628,647
Total	113,993	9,898,133	2,730,514	12,628,647
Total Study Region	113,993	9,898,133	2,730,514	12,628,647



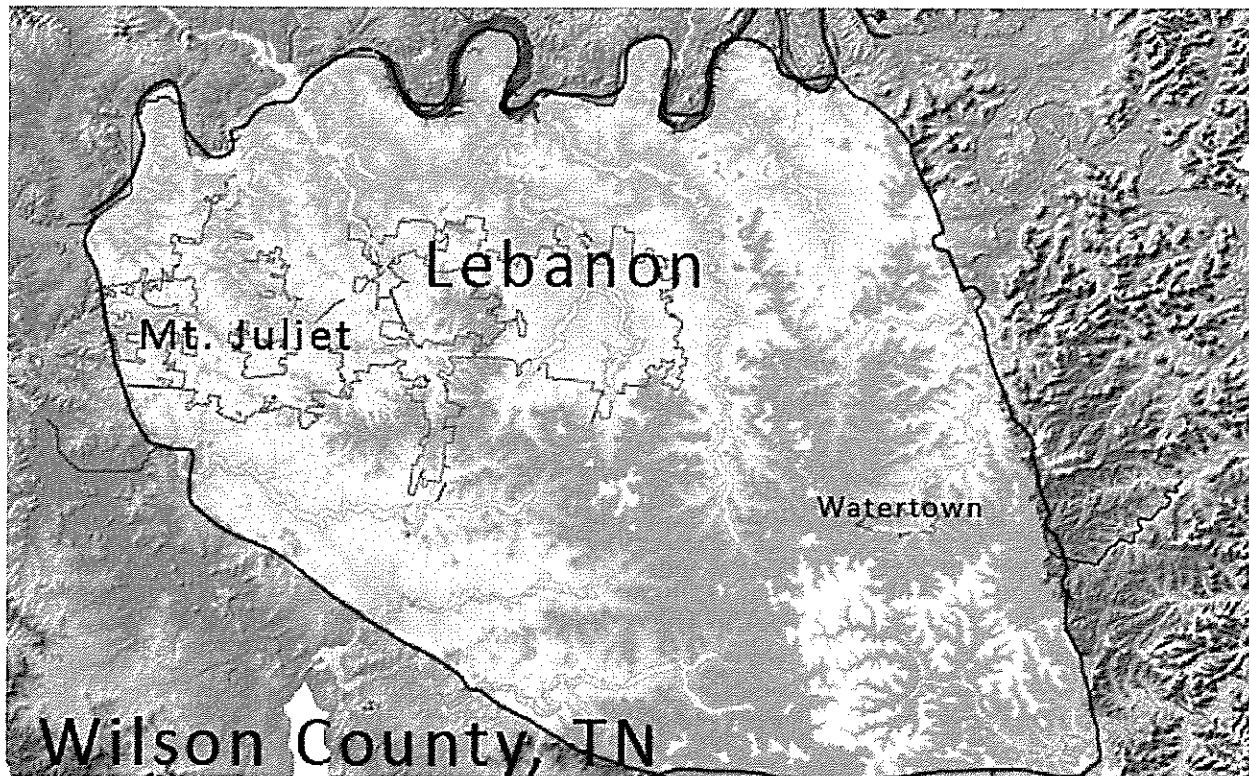
FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 16 of 16

Wilson County 500-Year Flood Boundaries





Hazus: Flood Global Risk Report

Region Name: Wilson_County

Flood Scenario: Wilson_County_500yr_Flood

Print Date: Friday, May 28, 2021

Disclaimer:

This version of Hazus utilizes 2010 Census Data.

Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific Flood. These results can be improved by using enhanced inventory data and flood hazard information.



FEMA

RiskMAP
Increasing Resilience Together



Table of Contents

Section	Page #
General Description of the Region	3
Building Inventory	
General Building Stock	4
Essential Facility Inventory	5
Flood Scenario Parameters	6
Building Damage	
General Building Stock	7
Essential Facilities Damage	9
Induced Flood Damage	10
Debris Generation	
Social Impact	10
Shelter Requirements	
Economic Loss	12
Building-Related Losses	
Appendix A: County Listing for the Region	15
Appendix B: Regional Population and Building Value Data	16



Flood Global Risk Report



Page 2 of 16



General Description of the Region

Hazus is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The flood loss estimates provided in this report were based on a region that included 1 county(ies) from the following state(s):

- Tennessee

Note:

Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is approximately 583 square miles and contains 3,529 census blocks. The region contains over 43 thousand households and has a total population of 113,993 people (2010 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 45,997 buildings in the region with a total building replacement value (excluding contents) of 12,629 million dollars. Approximately 92.29% of the buildings (and 78.38% of the building value) are associated with residential housing.



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 3 of 16



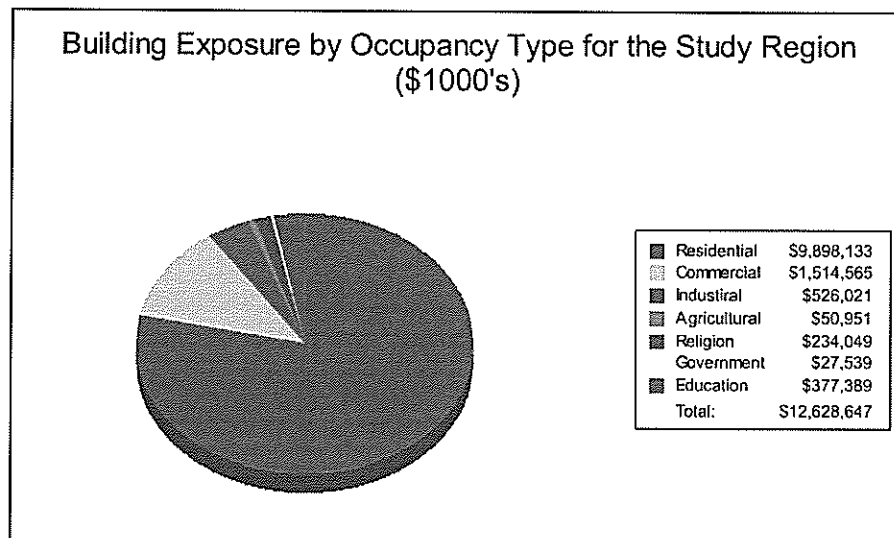
Building Inventory

General Building Stock

Hazus estimates that there are 45,997 buildings in the region which have an aggregate total replacement value of 12,629 million dollars. Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure (\$1000)	Percent of Total
Residential	9,898,133	78.4%
Commercial	1,514,565	12.0%
Industrial	526,021	4.2%
Agricultural	50,951	0.4%
Religion	234,049	1.9%
Government	27,539	0.2%
Education	377,389	3.0%
Total	12,628,647	100%



Flood Global Risk Report

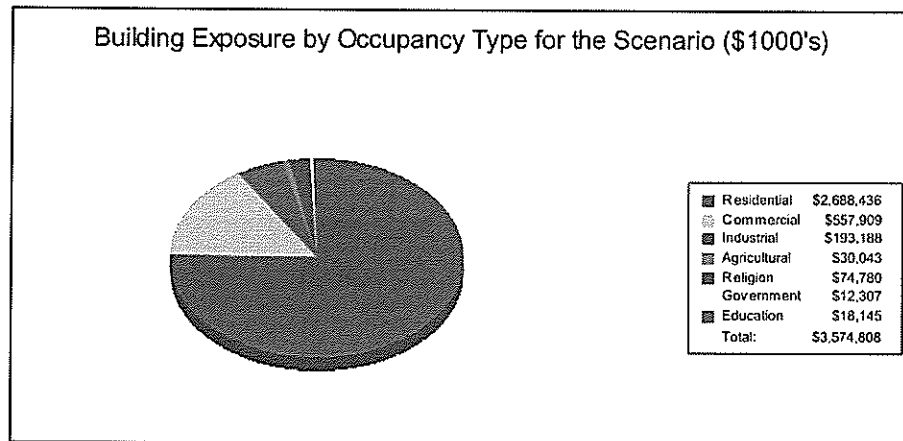
RiskMAP
Increasing Resilience Together

Page 4 of 16



Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure (\$1000)	Percent of Total
Residential	2,688,436	75.2%
Commercial	557,909	15.6%
Industrial	193,188	5.4%
Agricultural	30,043	0.8%
Religion	74,780	2.1%
Government	12,307	0.3%
Education	18,145	0.5%
Total	3,574,808	100%



Essential Facility Inventory

For essential facilities, there are 1 hospitals in the region with a total bed capacity of 225 beds. There are 29 schools, 3 fire stations, 4 police stations and no emergency operation centers.

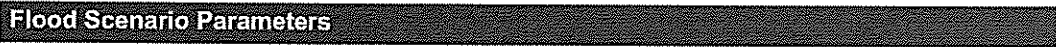


FEMA

Flood Global Risk Report

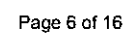
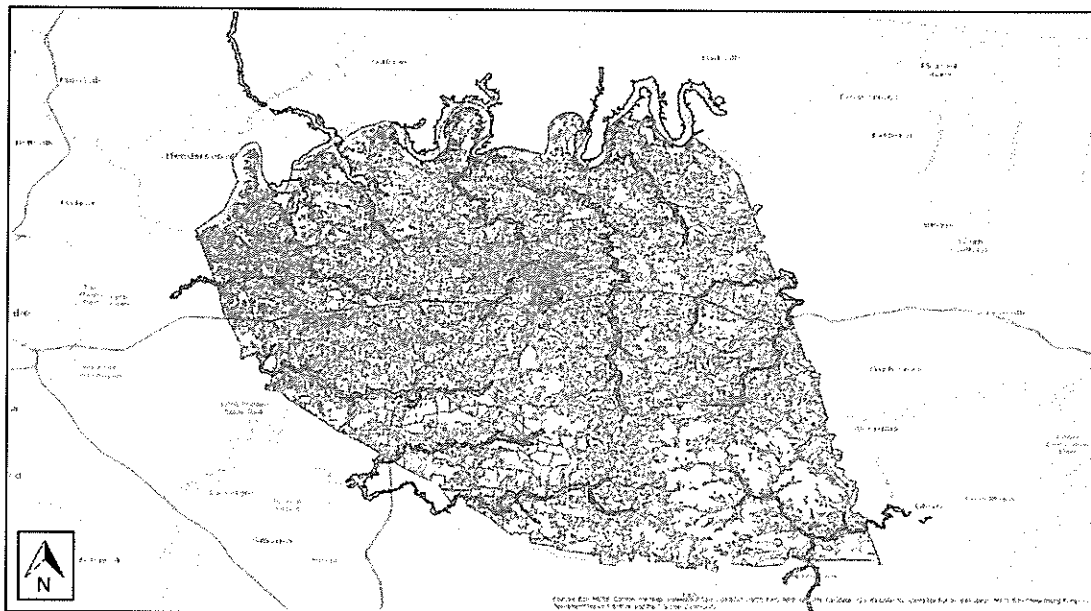
RiskMAP
Increasing Resilience Together

Page 5 of 16



Study Region Name:	Willson_County
Scenario Name:	Willson_County_500yr_Flood
Return Period Analyzed:	500
Analysis Options Analyzed:	No What-Ifs

Illustrating scenario flood extent, as well as exposed essential facilities and total exposure



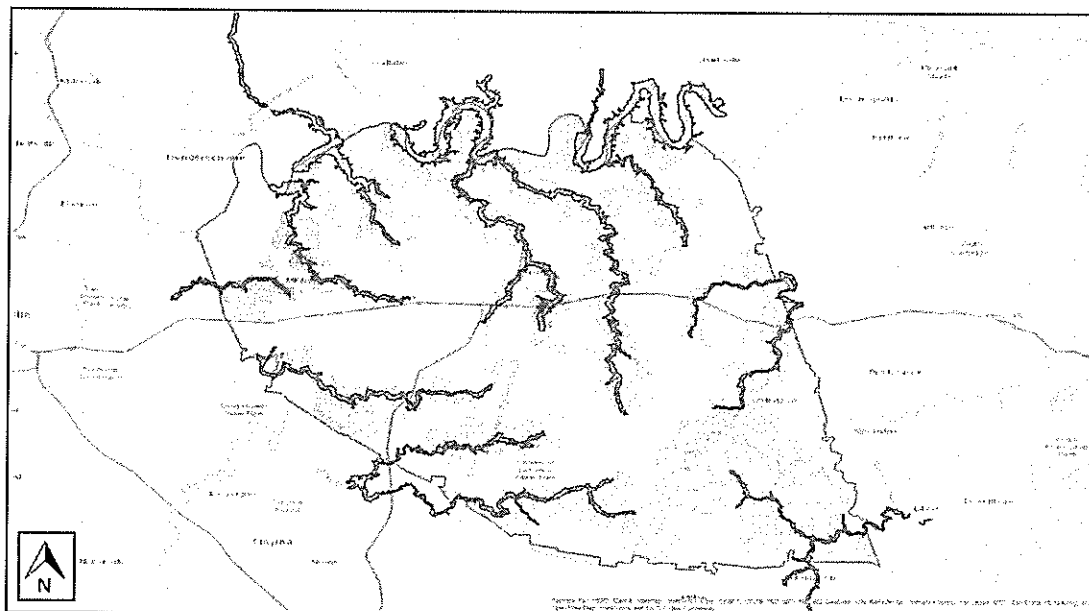


Building Damage

General Building Stock Damage

Hazus estimates that about 303 buildings will be at least moderately damaged. This is over 63% of the total number of buildings in the scenario. There are an estimated 23 buildings that will be completely destroyed. The definition of the 'damage states' is provided in the Hazus Flood Technical Manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Total Economic Loss (1 dot = \$300K) Overview Map



FEMA

Flood Global Risk Report

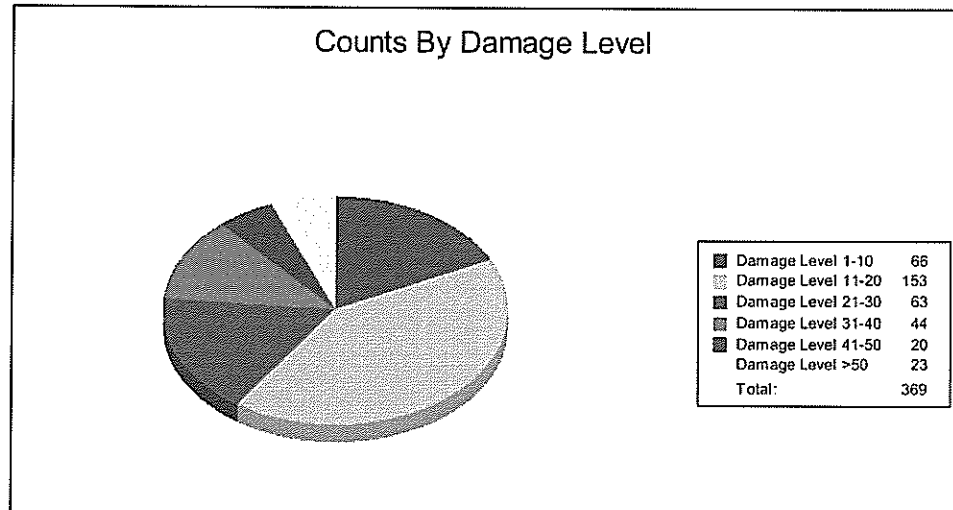
RiskMAP
Increasing Resilience Together

Page 7 of 16



Table 3: Expected Building Damage by Occupancy

Occupancy	1-10		11-20		21-30		31-40		41-50		>50	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	2	13	13	87	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	1	50	1	50	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	63	18	139	39	63	18	44	13	20	6	23	7
Total	66		153		63		44		20		23	



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 8 of 16



Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		>50	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0	1	100	0	0	0	0	0	0	0	0
ManufHousing	0	0	0	0	0	0	0	0	0	0	1	100
Masonry	1	8	10	77	2	15	0	0	0	0	0	0
Steel	0	0	3	100	0	0	0	0	0	0	0	0
Wood	63	18	137	39	62	18	44	13	20	6	22	6



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 9 of 16



Essential Facility Damage

Before the flood analyzed in this scenario, the region had 225 hospital beds available for use. On the day of the scenario flood event, the model estimates that 225 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate	At Least Substantial	Loss of Use
Emergency Operation Centers	0	0	0	0
Fire Stations	3	0	0	0
Hospitals	1	0	0	0
Police Stations	4	0	0	0
Schools	29	1	0	1

If this report displays all zeros or is blank, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.



Flood Global Risk Report



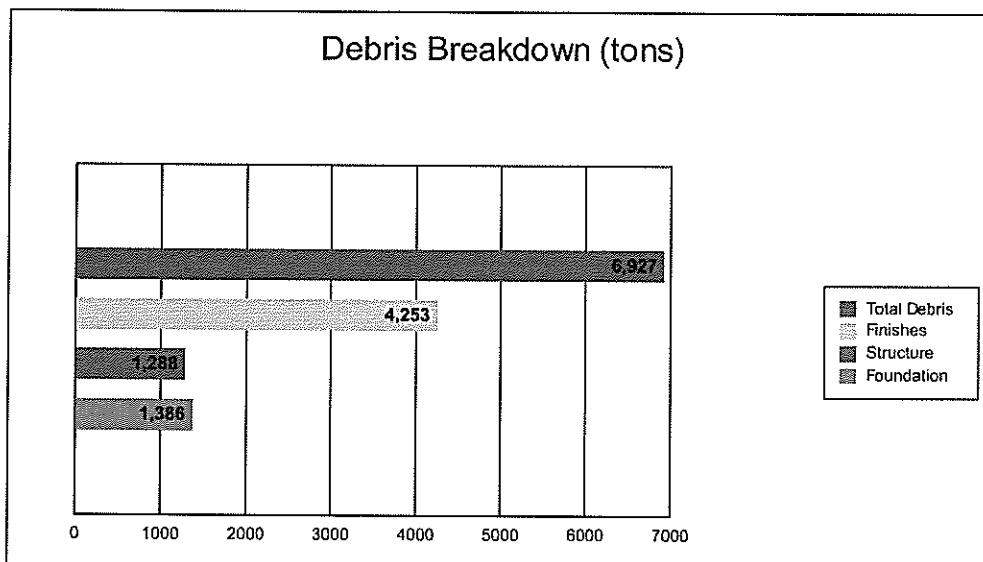
Page 10 of 16



Induced Flood Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.



The model estimates that a total of 6,927 tons of debris will be generated. Of the total amount, Finishes comprises 61% of the total, Structure comprises 19% of the total, and Foundation comprises 20%. If the debris tonnage is converted into an estimated number of truckloads, it will require 278 truckloads (@25 tons/truck) to remove the debris generated by the flood.



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

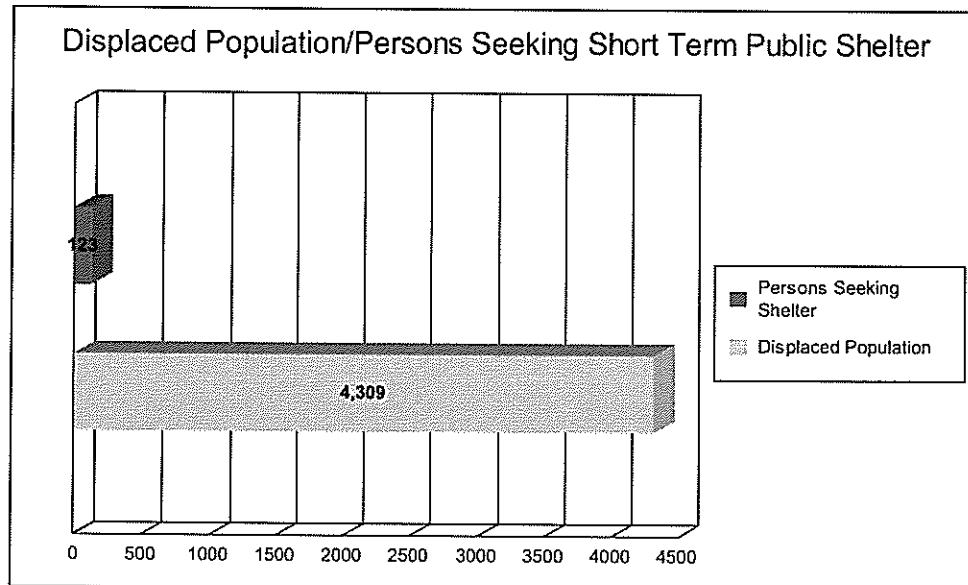
Page 11 of 16



Social Impact

Shelter Requirements

Hazus estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. Hazus also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 1,436 households (or 4,309 of people) will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 123 people (out of a total population of 113,993) will seek temporary shelter in public shelters.



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 12 of 16



Economic Loss

The total economic loss estimated for the flood is 476.47 million dollars, which represents 13.33 % of the total replacement value of the scenario buildings.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 254.58 million dollars. 47% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 33.51% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.



FEMA

Flood Global Risk Report

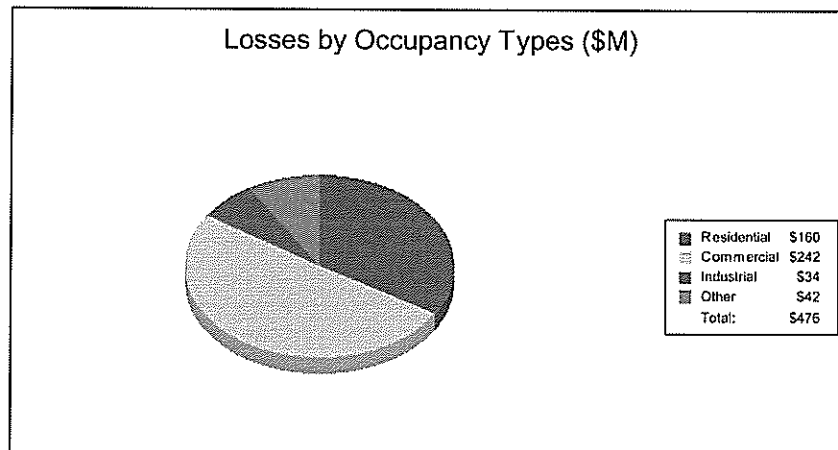
RiskMAP
Increasing Resilience Together

Page 13 of 16



Table 6: Building-Related Economic Loss Estimates
(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	74.45	22.40	8.42	1.94	107.20
	Content	40.23	71.67	18.94	11.34	142.19
	Inventory	0.00	1.84	3.15	0.20	5.19
	Subtotal	114.68	95.91	30.52	13.48	254.58
Business Interruption						
	Income	3.11	60.12	0.71	4.18	68.12
	Relocation	22.49	15.58	0.88	1.58	40.53
	Rental Income	12.04	11.41	0.15	0.16	23.76
	Wage	7.33	58.77	1.25	22.14	89.48
	Subtotal	44.97	145.87	3.00	28.06	221.89
ALL	Total	159.65	241.78	33.51	41.53	476.47



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 14 of 16



Appendix A: County Listing for the Region

Tennessee
- Wilson



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 15 of 16



Appendix B: Regional Population and Building Value Data

	Population	Building Value (thousands of dollars)		
		Residential	Non-Residential	Total
Tennessee				
Wilson	113,993	9,898,133	2,730,514	12,628,647
Total	113,993	9,898,133	2,730,514	12,628,647
Total Study Region	113,993	9,898,133	2,730,514	12,628,647



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 16 of 16

Appendix C

Planning Documentation

HMPC Meeting Sign-in Sheets, Agendas, Minutes, Public Advertisements

Wilson County Emergency Management Agency
Meeting Sign-In Sheet

2021 Hazard Mitigation Update - Planning Meeting #1

March 26, 2021, 1000 hours

Name (Please Print)	Organization	Telephone Number	Email Address
Daniel Cowan	Wilson EMA	615-636-4391	planning@wilsonema.com
Jaey Cooper	Wilson EMA	615-218-4121	director@wilsonema.org
Rick William	TEMA	931-510-5817	rick.williams@tn.gov
Chris Andrews	Wilson SO	615-784-9847	candrews@wisco95.org
Rob Ealy	City of Mt. Juliet	615-773-6233	realy@mtjuliet-tn.gov
Janie Leonard	COMS FD	615-566-7511	jleffman@njfire.org
Kim Kassander	TEMA	615-934-7504	kimberly.kassander@tn.gov
Steve Spencer	McCabe's	615-642-4215	spencers@wiscohds.com
David Means	LED	615-477-3357	meansd@lebanon-tn.org
Nick McCorkle	LED	615-405-8190	mccorklen@lebanon-tn.org
Tom Fitzgerald	Wilson EMA	615-447-2536	tfitzgerald@wilsonema.com
Paul Conley	Wilson EMA	615-444-3207	paul.conley@wilsonema.org
Mike Owen	Wilson	615-444-4434	mowen@wisco95.org
Hank Mueller	WCSO	615-444-4433	hmueller@wisco95.org
Don Brown	Mt. Juliet PD	615-773-7957	dbrown@mtjuliet-tn.gov

March 26, 2021, 1000 hours

[illegible]

Wilson County Emergency Management Agency Meeting Sign-In Sheet

2021 Hazard Mitigation Update - Planning Meeting #2

June 29, 2021, 0900 hours

Name (Please Print)	Organization	Telephone Number	Email Address
Daniel Cowan	Wilson EMA	615-636-4391	planning@wilsonema.com
Charles "Stacy" Hunt	City of Mt. Juliet	615-773-7957	shuft@mtjuliet-tn.gov
Rob Ealy	City of Mt. Juliet	615-773-6283	realy@mtjuliet-tn.gov
Regina Santana	City of Lebanon	615-444-3647	rsantana@lebanon-tn.org
Lee Clark	City of Lebanon	615-456-2131	Lee.Clark@lebanon-tn.org
Steve Spencer	Wilson Co Schools	615-642-4215	spencer@wiscschools.com
Josh Staller	City of Lebanon	615-444-3143	jstaller@lebanon-tn.org
Christopher Lowmeyer	Wilson County Development Site	615-449-2836	lowmeyer@wilsoncountynh.gov
Rick Williams	TEMA	615-946-4767	rick.williams@tn.gov
Kim Kassander	TEMA	615-939-7504	kim@kim.kassander@tn.gov
David Means	Lebanon Fire	615-477-3357	meansd@lebanon-tn.org
Nick McCorkle	Lebanon Fire	615-405-8190	mccorklen@lebanon-tn.org
Mike Dillon	Direct Flight Solutions	615-944-1232	mikedillon77@gmail.com
Heather Ealy	Lebanon Airport	615-637-2126	heather@directflight-solutions.com

Timeline & Details to complete the plan...

- Current Plan Expires in September
- Draft Haz-Mit Plan Template created
- First Meeting: 10:00 a.m., March 26, 2021, at the Lebanon Fire Department Headquarters, located at 520 Coles Ferry Pike (Enter through back doors that face the Floyd Center)
 - COVID-19 protection measures will be in place
 - Haz-Mit related material will be presented by WEMA and TEMA.
 - TEMA will be present to answer State/technical questions.
- The plan is crafted and mastered by the Wilson County Hazard Mitigation Planning Committee (Public Meeting #2)
- When complete, the Haz-Mit Plan must be placed on display for public viewing and input
- The Haz-Mit Plan is formally submitted to TEMA for State approval
- TEMA reviews and submits the plan to FEMA
- FEMA reviews and approves our plan
 - Can take ~3 Months to approve at FEMA
 - FEMA may require a future needs revision
 - The approved plan can be updated by the Wilson County Hazard Mitigation Planning Committee as necessary
- After FEMA Approves the plan, the local jurisdictions must adopt the plan (see attachments for previous adoptions)

Wilson County, TN

Hazard Mitigation Plan Update



Meeting #1

Daniel Cowan, Planning Officer, Wilson County EMA

1

Introduction

- WEMA Director/Chief Joey Cooper Opening Remarks
- TEMA Staff Present
- Captain Daniel Cowan
 - About the Current Plan
 - 2015 Update
 - Outdated/Underpriced Projects

2



Presentation Agenda



What is Hazard Mitigation?



Hazard Mitigation Plan



Mitigation Grants



Vulnerabilities

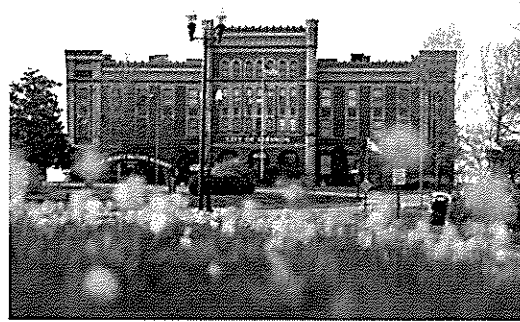


Risk Assessment

Context

Wilson County

- 5-year hazard mitigation plan expires in September 2021



Define

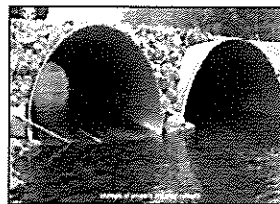
- Hazard Mitigation

- means any *sustained* action taken to reduce or eliminate the *long term* risk to human life and property from hazards



Preparedness/
Response

(short-term fix)



Mitigation

(long-term fix)

(reduces property damage)

5

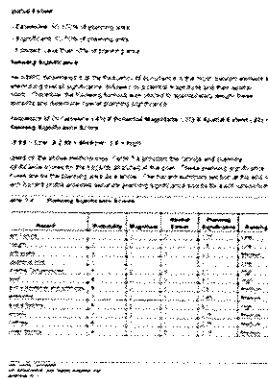
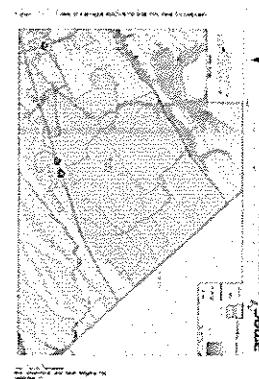


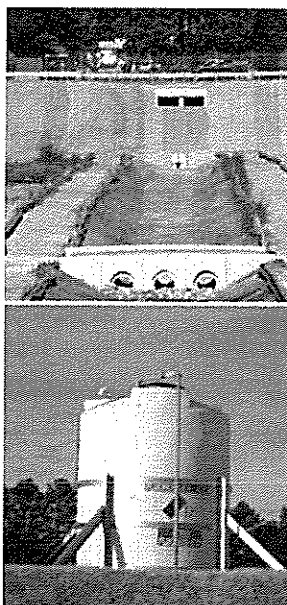
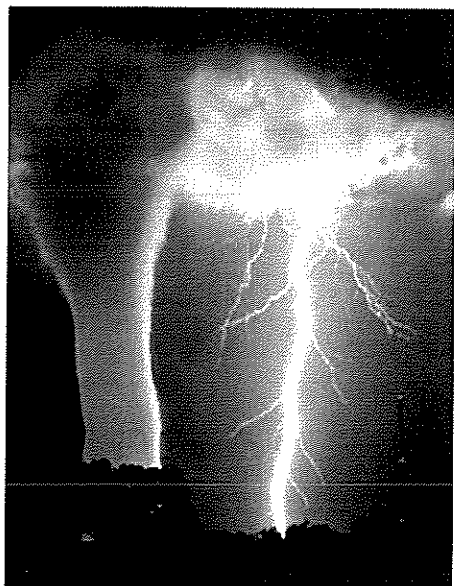
Figure 2-1: Map of Wilson County showing the location of the Hazard Mitigation Plan area.



- # Define

 - ## Hazard Mitigation Plan

 - a planning document that:
 - profiles specific hazard risks and vulnerabilities
 - identifies potential mitigation projects that can reduce those specific vulnerabilities



Hazard Mitigation Plan Components

1. Planning Process
2. Risk Assessment
3. Mitigation Strategy
4. Plan Maintenance

7

1. Planning Process

- How the plan is prepared
- What steps are taken to develop the plan
- What existing data sources are reviewed
- Who is involved in the planning process



2. Risk Assessment

Hazards

- Profiling what hazards affect each jurisdiction
- Addressing the strength and probability of the hazards
- Describing possible impacts the hazards could cause on the community's businesses, environments, structures, critical facilities and persons

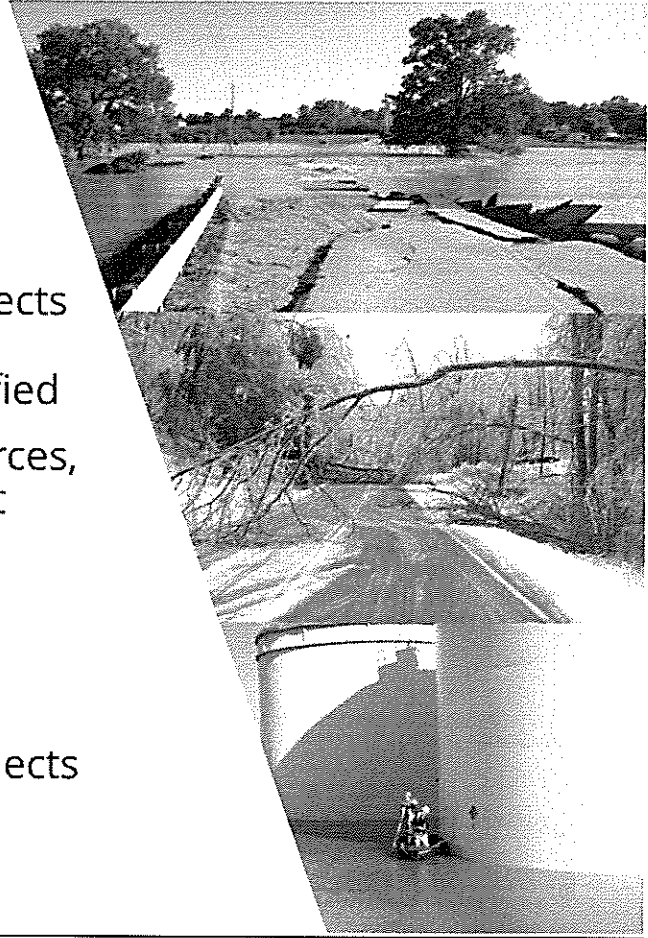
Vulnerabilities

- Determining the community's most vulnerable structures, populations, and infrastructure to hazard impacts

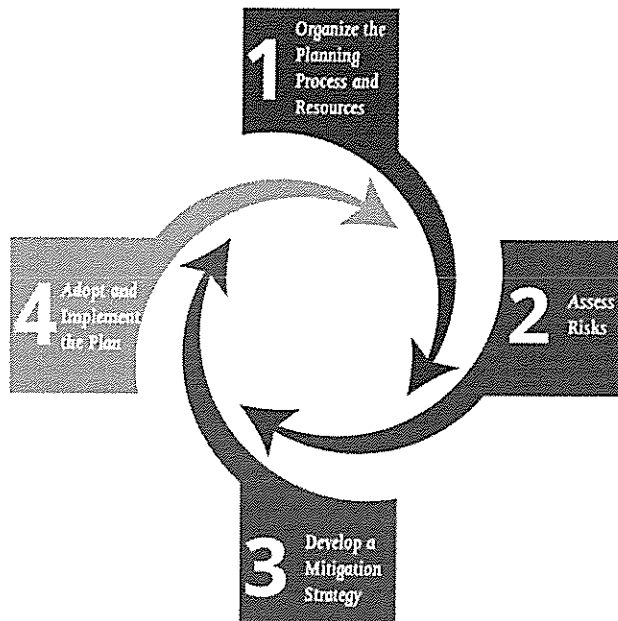


3. Mitigation Strategy

- Determining goals/projects to reduce the most vulnerable areas identified
- Describing funding sources, timeframes, and project management details
- Placing a focus on cost-effectiveness of the mitigation projects
- Prioritization of the projects



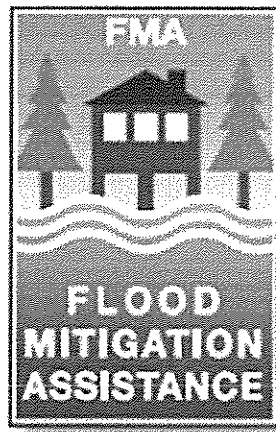
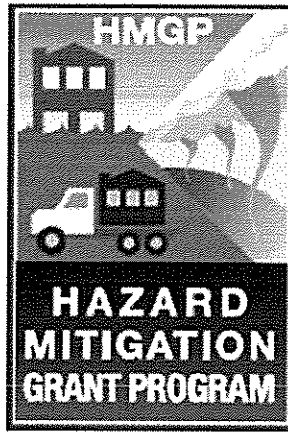
4. Plan Maintenance



How to keep the plan a living breathing document to be continually updated and implemented

- EMA reviews plan at the end of 3rd quarter annually

*committee to meet annually for review/small updates



Mitigation Grant Program

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation Program (PDM)
- Flood Mitigation Assistance Program (FMA)

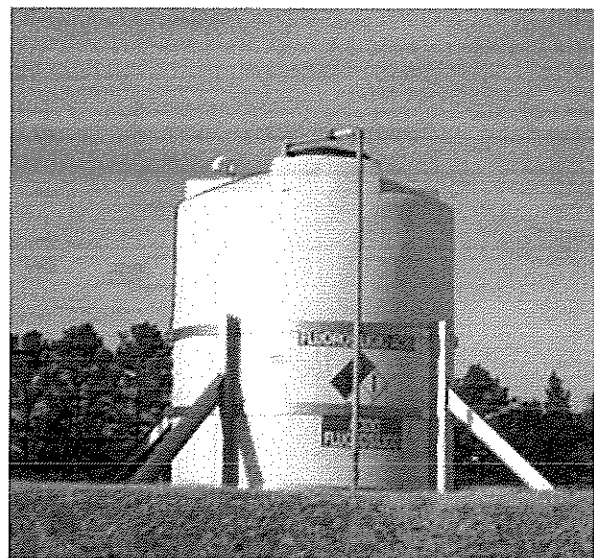
General Program Backgrounds

Grant Programs That Require Mitigation Plans			
	HMGP	PDM	FMA
State Plan	X	X	X
Local Plan	X	X	X

General Grant Program Information				
	Eligible Projects	Timeframe	Grant Match	
HMGP	All Natural Hazards	After a Presidential Declared Disaster (deadline approximately 12 months after disaster date)	75% Fed	(25% Non Fed)
PDM	All Natural Hazards	Annually (deadline approximately 1 Nov)	75% Fed	(25% Non Fed)
FMA	Flood	Annually (deadline approximately 1 Nov)	75% Fed	(25% Non Fed)

Note: Local Matches can be made up of HUD funds (*CDBG, Disaster Assistance*) and/or In-Kind Matches (supplies, materials, equipment, personnel)

13



Typical Mitigation-Eligible Projects

14

Project Ideas

Mitigation Type	Examples
Structural and Infrastructure Projects	<ul style="list-style-type: none">• Acquisition of flood prone areas• Culverts• Safe Rooms• Floodwalls
Local Plans and Regulation	<ul style="list-style-type: none">• Land use ordinance• Subdivision regulations• Building Codes• Open Space Preservation
Education and Awareness Campaigns	<ul style="list-style-type: none">• Websites with maps and information• Firewise communities• Presentations to school groups or neighborhood organizations

15



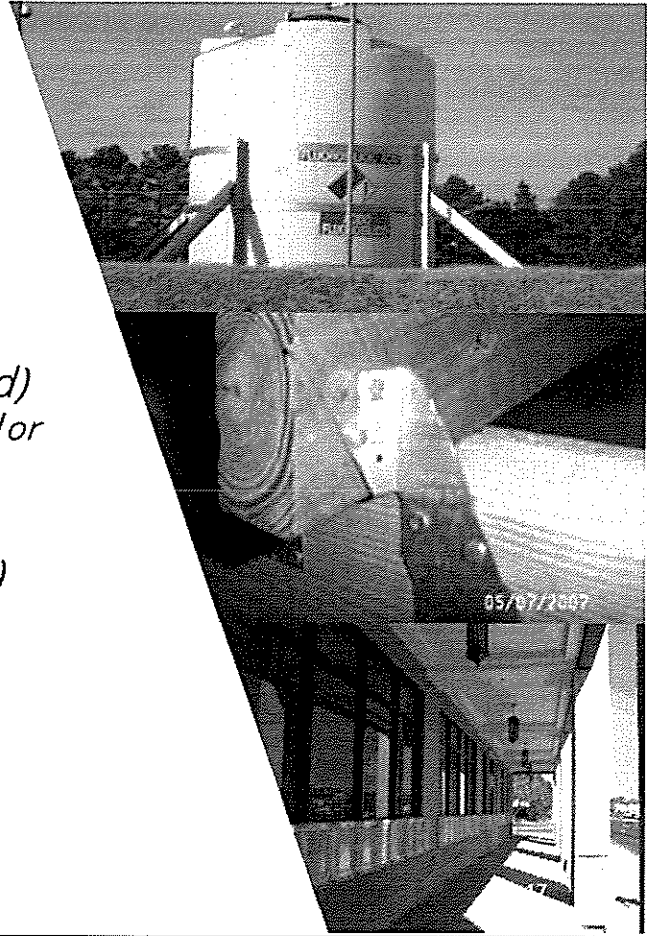
Acquisition for Open Space

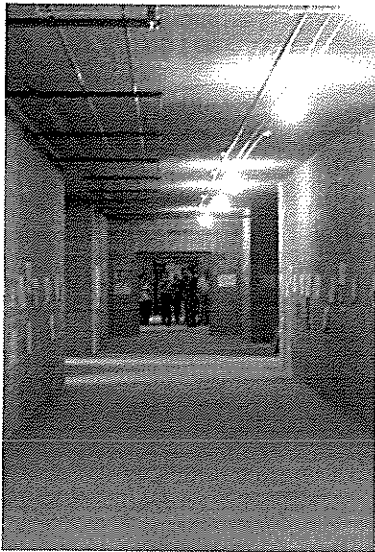
- Through Demolition or Relocation (Flood)

16

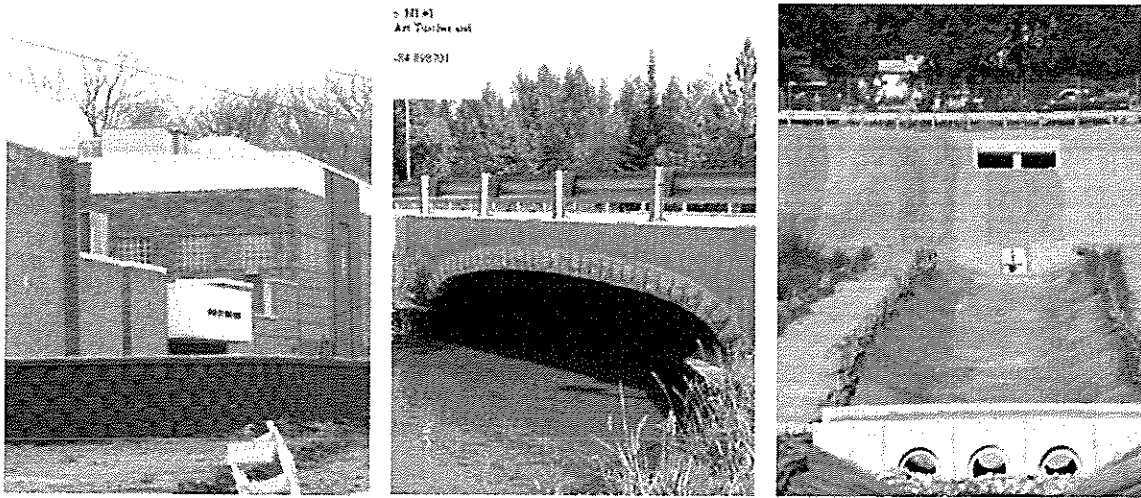
Structural Retrofits

- Flood proofing (*Flood*)
Only for Non-Residential or Historic Structures
- Wind Retrofits
(Tornado/High Wind)
- Seismic Retrofits
(Earthquakes)





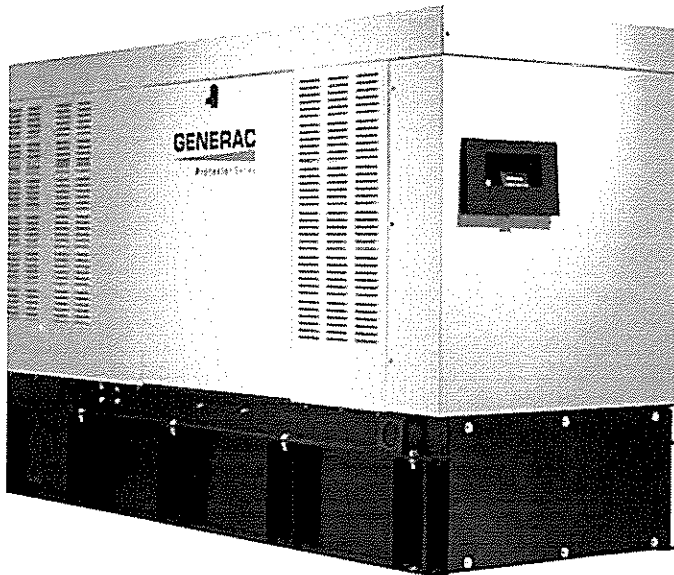
Safe Space *(aka Tornado Rooms)*



Flood Control

- Enlarged Culverts
- New Drainage Basins
- Minor Floodwall for Critical Facility

Back-Up Generators

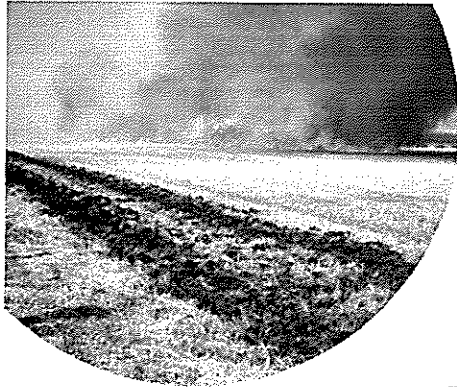


Critical
Infrastructure



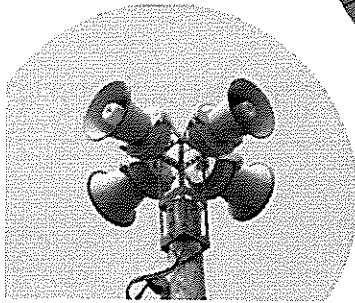
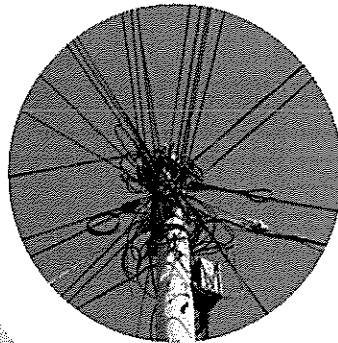
Fixed
Generators

20



Other Projects

- Buffer Zones
(Wildfire)
- Buried Utility Lines
(Winter Storm)
- Warning Sirens
(Severe Storm)





Ineligible Projects



Not Eligible: Disaster Repairs or Cleanups

Why Not: Because “*short-term recovery*” not “*mitigation*”

Mitigation requires making something better, not returning something to it's original state

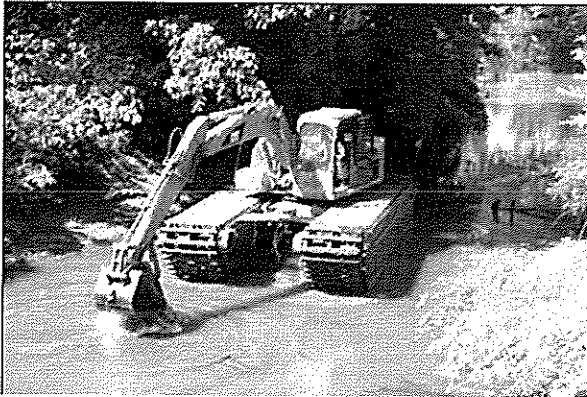
Instead Use:

- FEMA “Public Assistance”
- USDA NRCS “Emergency Watershed Protection (EWP)” Grants

Contact:

- TEMA District Coordinator
- USDA NRCS District Conservationist

Not Eligible: Dredging or Creek Rerouting

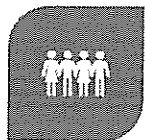


Why Not: Because "*short-term fix*" not "*mitigation*"

- Mitigation is a long-term fix; dredging is only a temporary solution
- Environmental/Engineering Agencies have authority over stream, creek, river decisions; emergency management agencies don't have jurisdiction

Contact: TVA, ACOE, TDEC

What are we doing today?



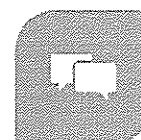
COMMUNITY AND
DEVELOPING
RESOURCES



CURRENT AND
ADDITIONAL
MITIGATION GOALS



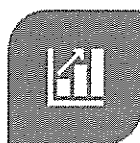
GROWTH AND
IMPACT



DISCUSSION ON
VULNERABLE AREAS



NFIP STRATEGIES



HAZARD RATING

25

Planning Mechanisms

What are some resources that our community has that hazard mitigation can be incorporated into?

Examples:

- Building Codes
- Zoning Codes
- Basic Emergency Operational Plan (BEOP)
- Wilson County Growth Plan
- Capital Improvement Plan
- Floodplain management program
- **Any new additional plans?**

268

Current Mitigation Goals



SAVE LIVES AND PROPERTY



DECREASE COST OF
HAZARDS



FACILITATE AND GUIDE
DISASTER RECOVERY



REDUCE VULNERABILITY
WITH SOUND
DEVELOPMENT PRACTICES
AND POST DISASTER
RECOVERY AND
RECONSTRUCTION



EXPEDITE APPLICATION OF
PRE- AND POST DISASTER
GRANT FUNDING



DEMONSTRATE A
COMMITMENT TO
IMPROVE COMMUNITY
HEALTH AND SAFETY



Growth And Impact

- What areas in the county have experienced growth in the last decade?
- What areas do we think may grow more?

27

Wilson County Hazard Vulnerabilities

- Have any changes made the community more vulnerable to hazards?
- Areas Prone to Flooding:
 - Certain Intersections?
 - Housing/Industrial Subdivisions?
 - Certain Creeks?



25

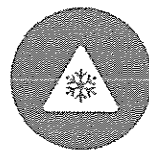
Current Natural Hazard Risks



FLOODING



SEVERE
STORMS



WINTER
STORM



DROUGHT

NFIP Strategies



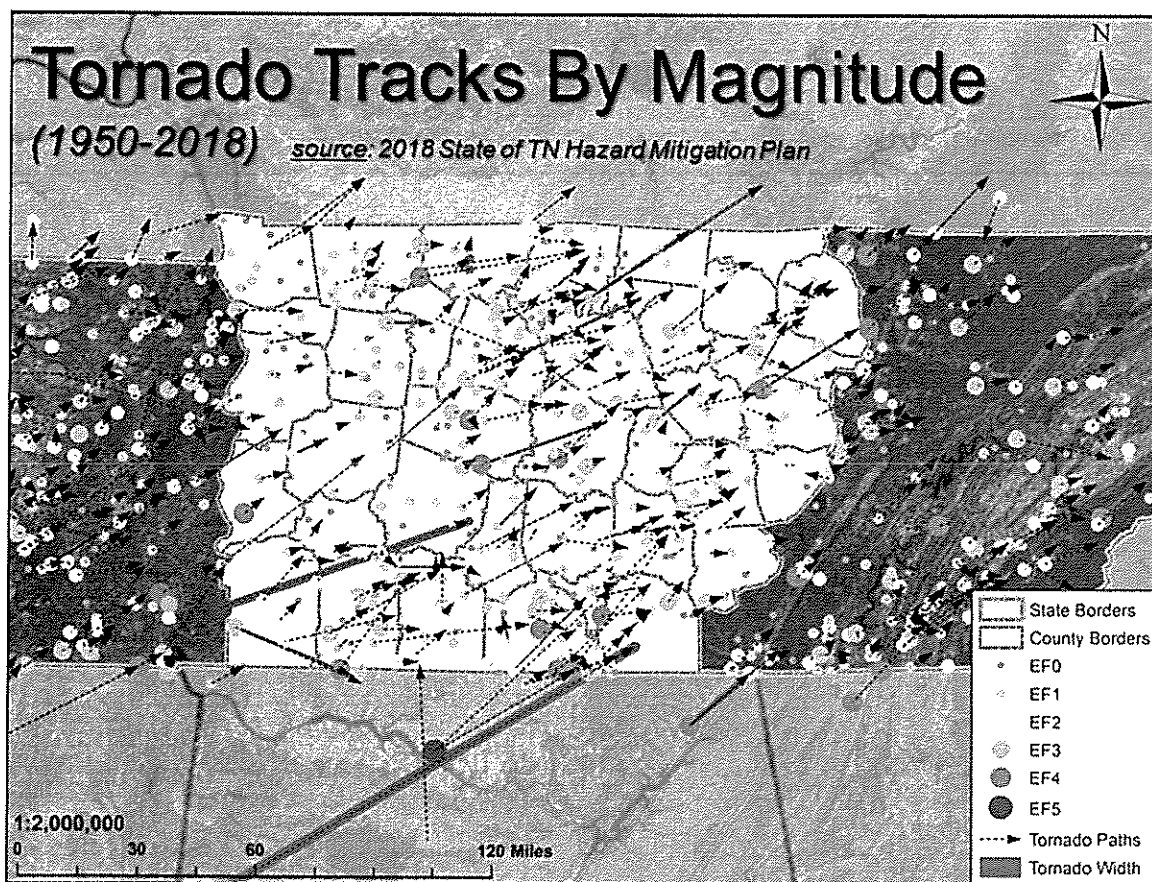
Continue to evaluate improved standards that are proven to reduce flood damage



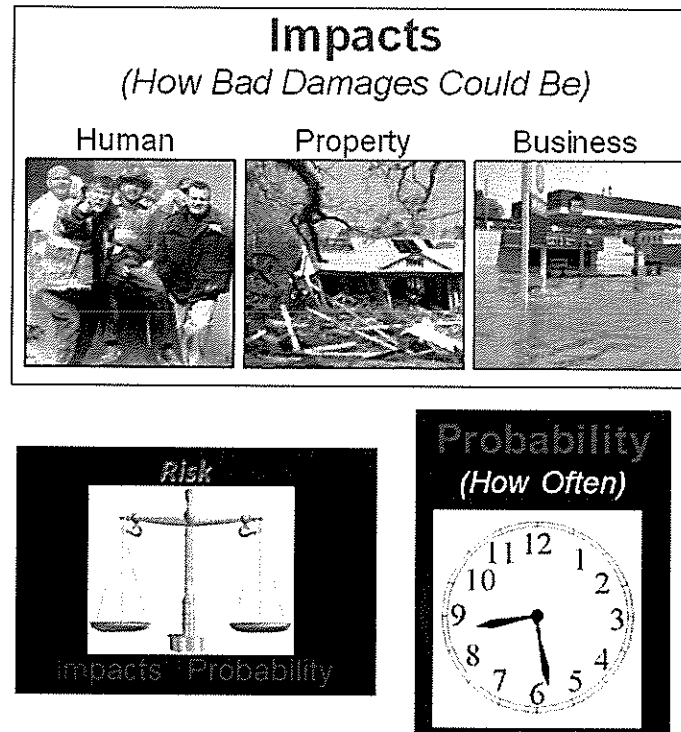
Maintaining supplies of FEMA/NFIP materials to help homeowners evaluate measures to reduce damage



Maintaining a map of areas that flood frequently and prioritizing for inspection immediately following heavy rains or flooding



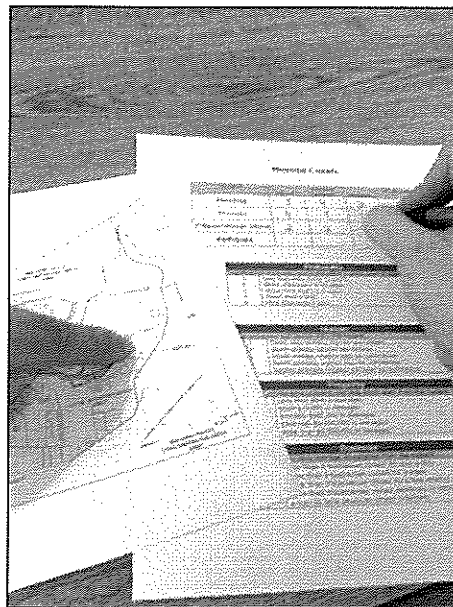
Jurisdiction's Risk Assessment



13

Fill Out Risk Assessment Charts

- Break into Jurisdictions
- Complete the hazard risk assessment forms



25

Hazard	Impacts			Probability
	Human	Property	Business	
Flooding	2	3	1	4
Tornado	3	3	4	2
Freeze/Winter Storm				

Walk-Through Examples

Human	
<i>Risk of injuries and deaths from the hazard</i>	
1	Death very unlikely, injuries are unlikely
2	Death unlikely, injuries are minimal
3	Death unlikely, injuries may be substantial
4	Death possible, injuries may be substantial
5	Deaths probable, injuries will likely be substantial

Business	
<i>Amount of business damage associated from the hazard</i>	
1	Less than 3 businesses closed for only a day
2	More than 3 businesses closed for a week
3	More than 3 businesses closed for a few months
4	More than 3 businesses closed indefinitely or relocated
5	A top-10 local employer closed indefinitely

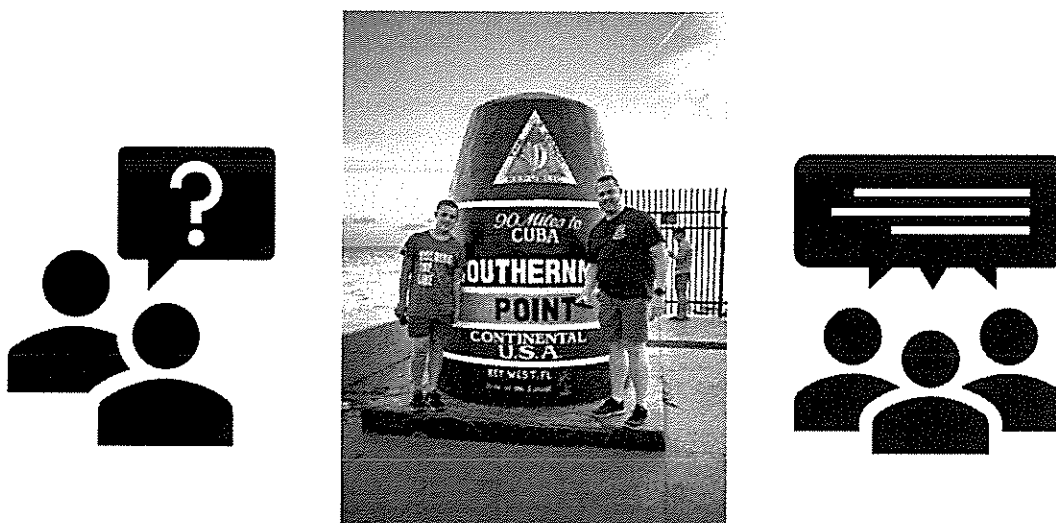
Property	
<i>Amount of residential property damage associated from the hazard</i>	
1	Less than \$500 in damages
2	\$500-\$10,000 in damages
3	\$10,000-\$500,000 in damages
4	\$500,000-\$2,000,000 in damages
5	More than \$2,000,000 in damages

Probability	
<i>Likelihood of the hazard occurring within a given span of years</i>	
1	Less than once every 10 years
2	About once every 5-10 years
3	About once every 2-5 years
4	About once a year
5	More than once a year

Set Meeting #2 Date/Time



95



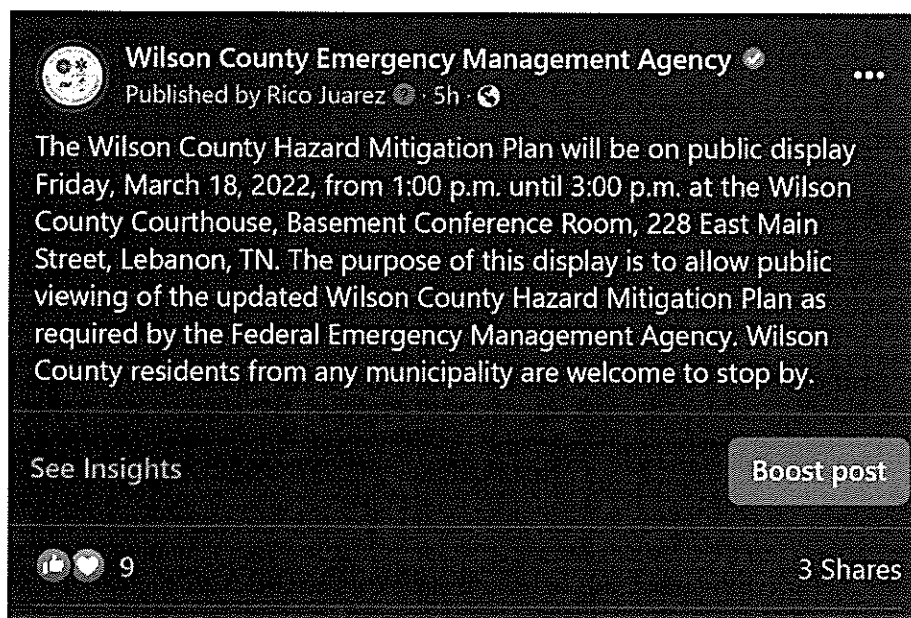
Wilson County EMA Planner: Daniel Cowan
planning@wilsonema.com (615) 636-4391

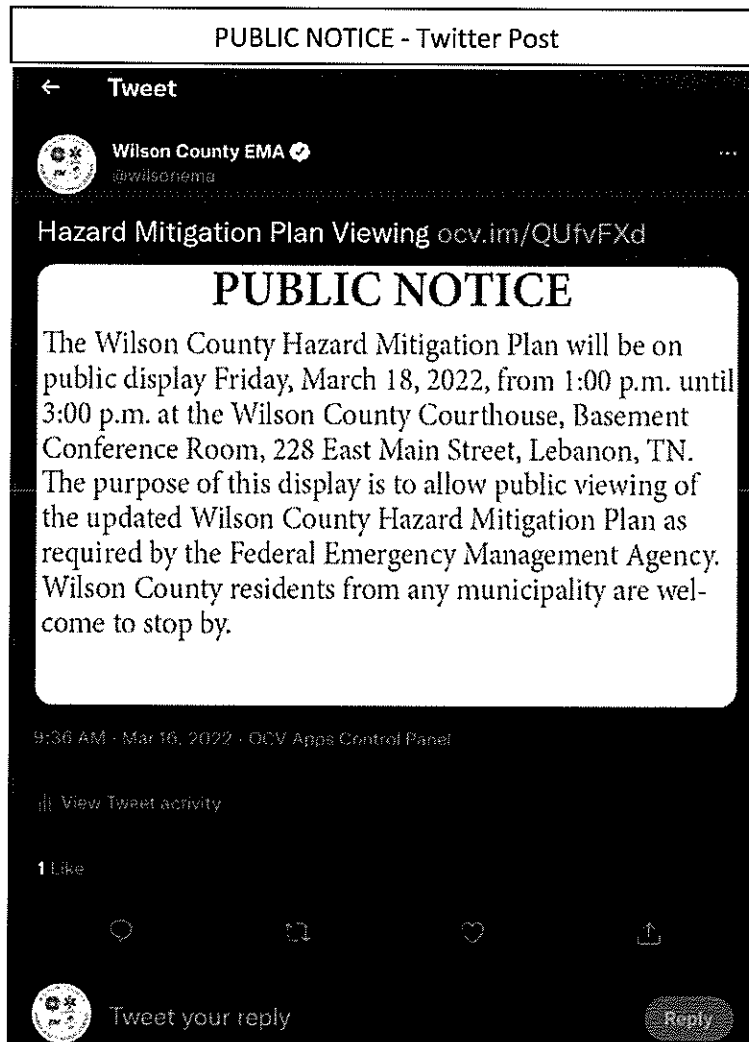
Middle Region Planner: Kim Kassander
Kimberly.kassander@tn.gov (615) 934-7504

Hazard Mitigation Grants: Kari Cochran
kari.cochran@tn.gov

37

PUBLIC NOTICE - Facebook Post





PUBLIC NOTICE – Print Media, Wilson Post Newspaper

Agent reserves the right to reject any or all bids, to accept any portion of any bid, or to accept other than the bid with the lowest cost meeting specifications.

“Under Title VI of the Civil Rights Act of 1964, no person shall, on the grounds of race, color or national origin, be excluded from participation in, be denied the benefits of or be subjected to discrimination under any program or activity receiving federal financial assistance.”

**WILSON COUNTY FINANCE DIRECTOR/
PURCHASING AGENT**

PUBLIC NOTICE

The Wilson County Hazard Mitigation Plan will be on public display Friday, March 18, 2022, from 1:00 p.m. until 3:00 p.m. at the Wilson County Courthouse, Basement Conference Room, 228 East Main Street, Lebanon, TN. The purpose of this display is to allow public viewing of the updated Wilson County Hazard Mitigation Plan as required by the Federal Emergency Management Agency. Wilson County residents from any municipality are welcome to stop by.

INVITATION TO BID

The City of Lebanon is accepting sealed proposals for dumpsters and pick up services for three locations on the Lebanon Public Square.

Bid forms and specifications may be obtained from the office of the Purchasing Agent, 200 N. Castle Heights Avenue, Lebanon, TN 37087 or online at www.lebanontn.org under the Business Tab. Proposals must be returned no later than March 22, 2022 by

PUBLIC NOTICE – Community Calendar Post

× PUBLIC NOTICE – Hazard Mitigation

Save

Mar 18, 2022 13:00 to 15:00 Mar 18, 2022 Time zone

☐ All day Does not repeat ▾

Event Details Find a Time

Add Google Meet video conferencing


228 E Main St, Lebanon, TN 37087, USA


Add notification

Community Calendar ▾ ● ▾

Busy ▾ Default visibility ▾ ?

Availability might be shown in other Google apps ?

 **B** *I* U    

 Create meeting notes

The Wilson County Hazard Mitigation Plan will be on public display Friday, March 18, 2022, from 1:00 p.m. until 3:00 p.m. at the Wilson County Courthouse, Basement Conference Room, 228 East Main Street, Lebanon, TN. The purpose of this display is to allow public viewing of the updated Wilson County Hazard Mitigation Plan as required by the Federal Emergency Management Agency. Wilson County residents from any municipality are welcome to stop by.

March 18, 2022, 1300-1500 hours

WILSON COUNTY
HAZARD MITIGATION PLAN UPDATE

Appendix D

Local Jurisdiction Plan Adoptions

Appendix E

References

1. IPCC, 2014. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.
2. IPCC, 2007a. Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. (Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. A-2 EC 1165-2-212 1 Oct 11 Miller, eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
3. IPCC, 2007b. IPCC Fourth Assessment Report Annex 1: Glossary. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller, eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
4. IPCC, 2007c. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. (M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden and C. E. Hanson, eds.). Cambridge University Press, Cambridge, UK.
5. National Oceanic and Atmospheric Agency (NOAA) National Climatic Data Center, Storm Events Database, 2015.
6. U.S. Bureau of the Census, Census 2010.
7. United States Department of Agriculture, Census of Agriculture, 2012.
8. Federal Emergency Management Agency, Community Information System, 2016.
9. National Oceanic and Atmospheric Agency, What is a Drought Fact Sheet, October 2012.
10. Global Climate Change Impacts in the United States. Karl, T.R., J. M. Melillo, and T. C. Peterson (eds.). United States Global Change Research Program. Cambridge University Press, New York, NY, USA. 2009.
11. State of Tennessee, Hazard Mitigation Plan, 2018.
12. Wilson County Hazard Mitigation Plan 2016 Update.
13. Moore, H. Karst Geology in Tennessee.
<https://extension.tennessee.edu/publications/Documents/W453-C.pdf>
14. Wilson County Comprehensive Plan, 2018 Edition.

15. Wilson County Joint Economic and Community Development Board data.
16. City of Mount Juliet Land Use & Transportation Plan, 2016 Edition.